DECEMBER 1949

PIT AND QUARRY

...to our many friends...

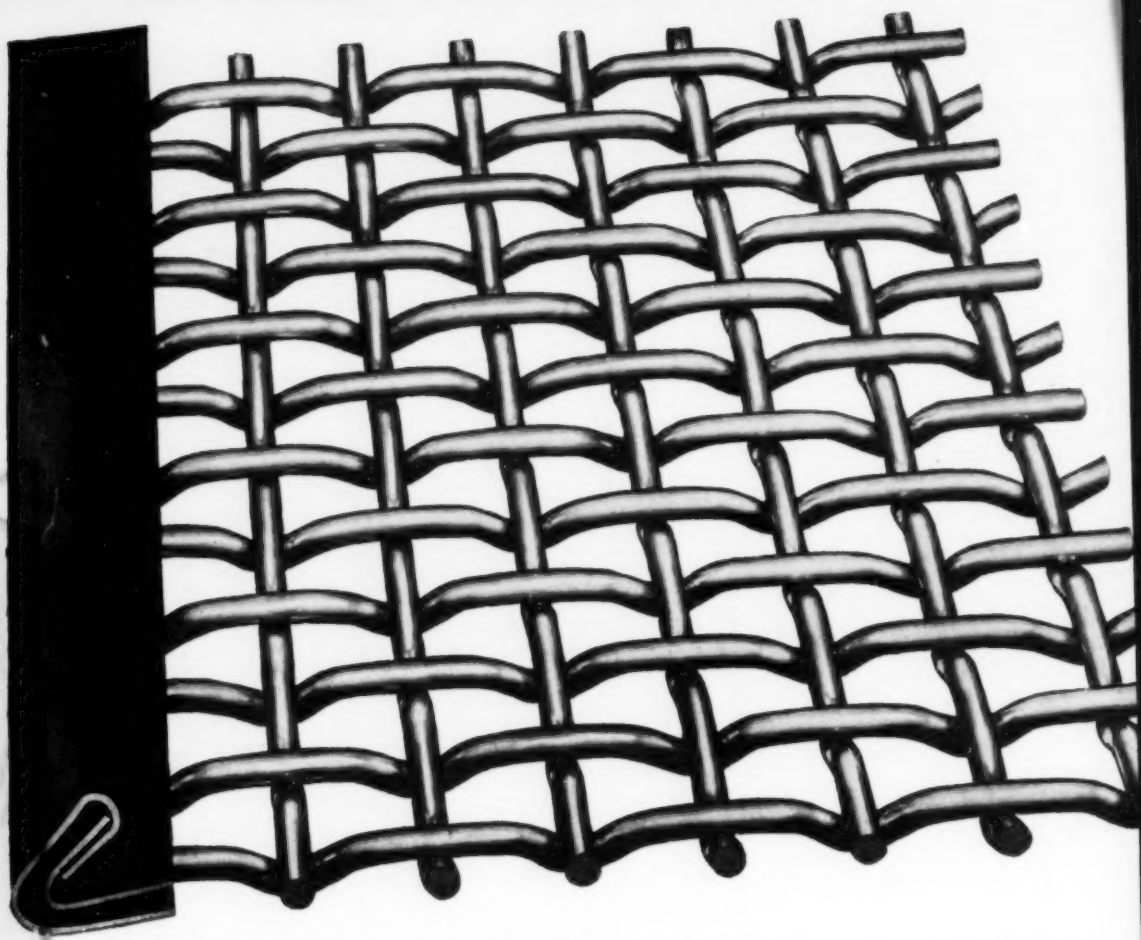
May you have a

Merry Christmas and a

Happy and Prosperous

New Year

—PIT AND QUARRY



SUPER-LOY VIBRATING-SCREEN SECTIONS

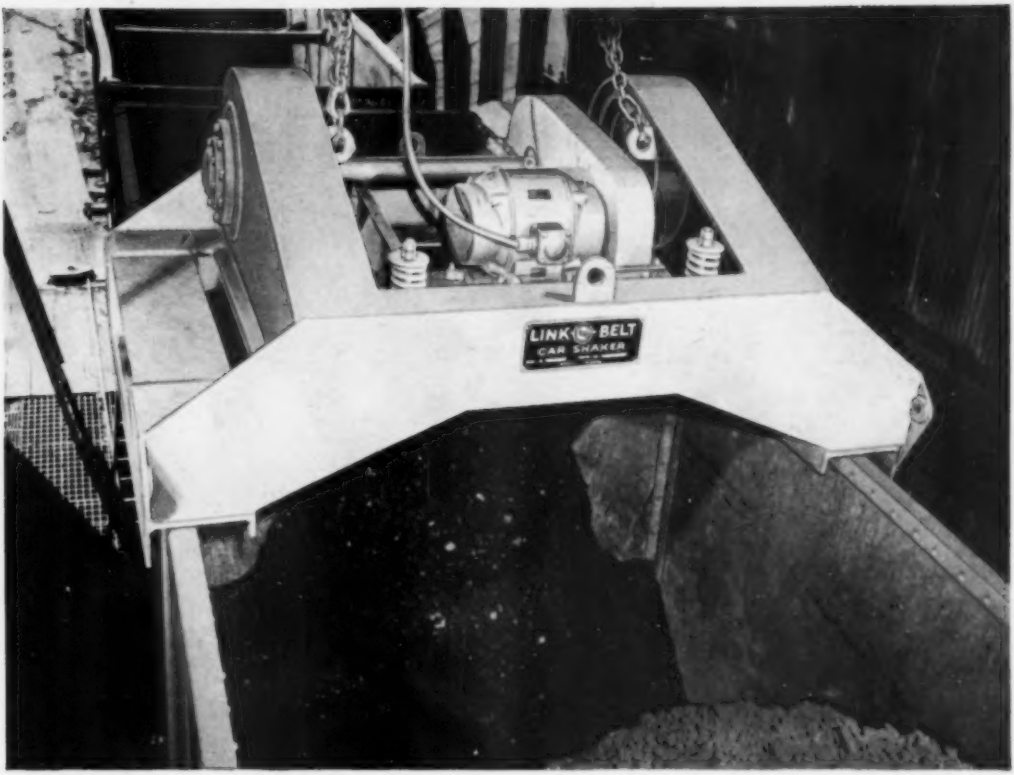
SUPER-HARD - - - SUPER-TOUGH - - - SUPER-STRONG

SUPER-LOY SCREENS are made from a high carbon steel specially alloyed to withstand abrasion longer — endure vibration better — resist fatigue to the utmost

Order Ludlow-Saylor *Engineered* Hook Strips for all tensioned vibrator-screen sections. They transmit to every tensioned wire an equal share of uniform vibration, evenly distributed throughout the entire screen area. They make screen sections last longer step up screen capacities — are easier to handle — quicker to install — need fewer adjustments and renewals.

THE LUDLOW-SAYLOR WIRE COMPANY

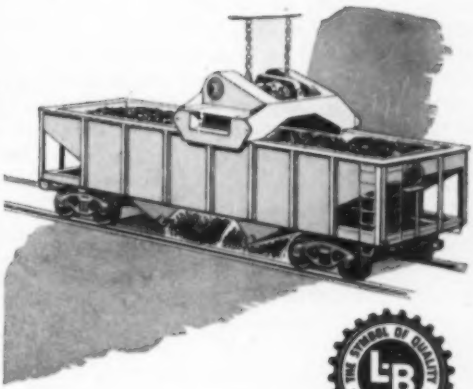
634 S. Newstead Ave. **ST. LOUIS 10, MO.**



Now, you can unload bulk materials from hopper-bottom cars--
"broom-clean" and fast with

LINK-BELT CAR SHAKER

Lower the Link-Belt Car Shaker to the top of the car walls. Start the motor which delivers vibrations to the car sides and sloping hopper bottoms, loosening the material for easy "broom-clean" unloading in minutes. Reduce unloading costs and injury hazards and eliminate demurrage charges with this efficient unit. It is especially valuable for unloading damp or frozen materials. May we send you full information? Send for Book No. 2345.



LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities. 11,500

PIT AND QUARRY, December, 1949. Vol. 42, No. 6. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $5 additional for each year. Single copy 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

5 TO 10 TIMES Longer Jaw Plate Life!

Kue-Ken* Crushers Give Greater Production at *LOWER COST*

Across the country users of Kue-Ken Crushers report 5 to 10 times *longer jaw plate life*, and 2 to 3 times more capacity, with less power. These advantages and economies come from Kue-Ken's revolutionary principle of "crushing without rubbing."

Exclusive Kue-Ken design places the hinge pin on the center line of the crushing zone. As the jaw swings back and forth, it describes an arc which is normal to both crushing faces. Crushing is done by compression alone. RUBBING is impossible with this motion. Time down for replacements is greatly reduced.

Pitman is always in compression, bearing against lower side of shaft ONLY, and there is 90% saving in Pitman weight. This lighter Pitman weight plus balanced mechanism permits 50 to 60% more crushing strokes per minute, giving greater production at lower cost.

Kue-Ken crushers are operating throughout the world. Write today for Bulletin 605. You, too, can reduce your crushing costs with Kue-Ken equipment.

17 sizes from 12" x 7" to 42" x 25". Above No. 90, 36" x 20"

1. Sealed mechanism requires lubrication only twice a year.
2. Has simple safety device which protects crusher against tramp iron and overload.
3. Only light foundation required because of built-in smooth running features of Kue-Ken design.
4. Automatic oil pressure switch stops crusher and motor if oil pressure drops below normal setting.

Exclusive manufacturer for Eastern U.S., Canada and Puerto Rico: Pennsylvania Crusher Co., Broad and Arch Sts., Phila., Pa.

YOUR NEAREST WESTERN DEALER

Oregon-Washington	P. L. Crooks & Co.	Portland
Montana	Caird Engineering Works	Helena
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Utah	Lund Machinery Co.	Salt Lake City

DEALERS: SOME TERRITORY IS STILL OPEN!

*Pronounced Q-Ken. U. S. and Foreign Patents Pending.

546 CHESTNUT STREET • OAKLAND 20, CALIFORNIA

STRAUB MFG. CO.

Kue-Ken Balanced Crushers	Rib Cone Ball Mills	Overflow Classifiers
Kue-Ken Simplex Crushers	Concentrating Tables	Feeders
Kue-Ken Gyratory Crushers	Overhead Eccentric Crushers	Screenwheel Classifiers

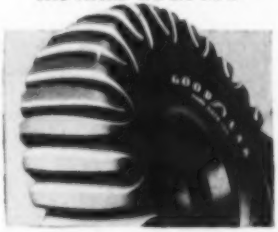
Like two tires in one!

HERE's the double-duty pit and quarry tire specially built to handle two jobs. ON the road it rolls long and smooth, pays off on mileage—OFF the road it gives super-traction. It's Goodyear's new, improved Road Lug.

The Road Lug's alternately spaced lug bars are big and husky—bite right in on dirt and other unpaved surfaces for positive traction. But when it hits the highway, its long continuous center strip gives smooth rolling, long economical mileage.

This remarkable dual-purpose tire has extra-strong carcass and undertread—tapered grooves between the lugs to prevent the picking up and holding of stones—wider spaced, deeper lug bars. Put all these outstanding features together in one tire and you have the perfect tire for pit and quarry hauling—Goodyear's new, improved Road Lug. Remember, always BUY and SPECIFY Goodyear—*it pays!*

The Super-Stamina Tire
For OFF-THE-ROAD Hauling
The HARD ROCK LUG



This extra-husky tire is best for all OFF-THE-ROAD *tire-ripping, tire-bruising jobs. Ask your Goodyear dealer about it now!*

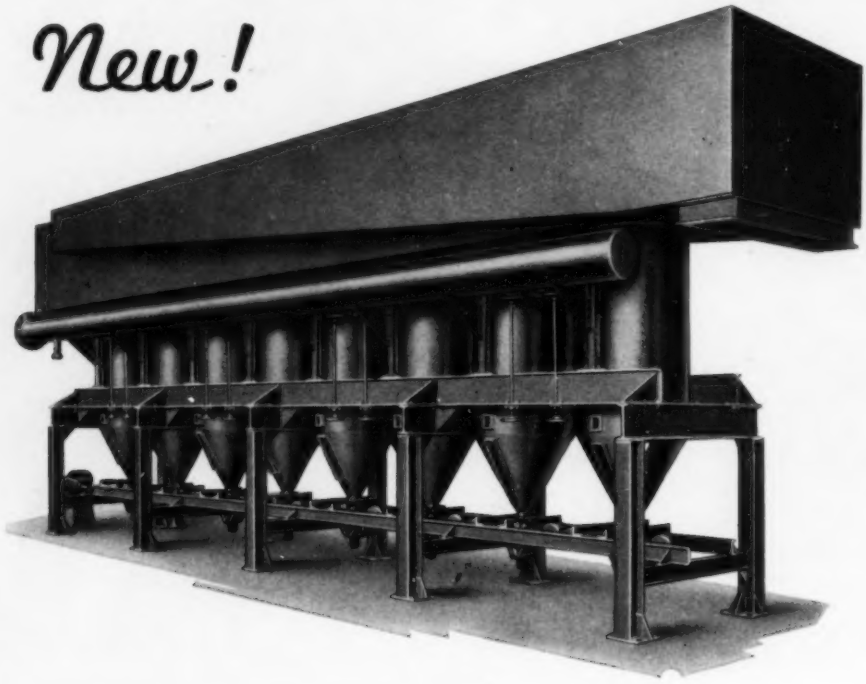
We think you'll like "THE GREATEST STORY EVER TOLD"—Every Sunday—ABC Network

Road Lug—T. M. The Goodyear Tire & Rubber Company

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND

New!



a Giant Classifier for Sand and Gravel

The multiple-spigot Concenco Super-Sorter is now available for high tonnage, economical production of concrete sand, washed gravel, phosphate rock and similar granular materials.

It does what engineering opinion has heretofore held impossible. . . . At high commercial tonnage rates, it sorts granular materials hydraulically into a number of uniform, graded products, with investment, operating and maintenance costs economically favorable. For example, an 8 cell SuperSorter unit, classifying minus 8 mesh sand, easily produces 130 tons per hour of accurately classified products.

SuperSorter units may be supplied in combination to handle any capacity required. All construction is of heavy type.

Send for complete description of operation, construction and performance.

The CONCENCO *Super Sorter*

Manufactured by

THE DEISTER CONCENTRATOR COMPANY

911 Glasgow Avenue **Fort Wayne, Indiana**

SURE STARTERS
in coldest weather!

THESE pictures were taken at about 15° below zero, at the Sargent Bros., Inc. crushing plant near Winterset, Iowa. The "Caterpillar" Diesels on the job started without trouble, as they do in all weathers. And that's just one example of how the dependability built into these big yellow engines pays off for you.

This is an all-"Caterpillar" Engine operation. Two D13000s and one D17000 power the crusher, conveyor screen and feeder, producing 75 tons per hour of road rock and aggregate lime. And they're doing it hour after hour, day after day with a reliability ordinary engines can't touch. They take dust in stride, too – their air cleaners and seals enabling them to stand up under this severe operating condition. Other rugged "Caterpillar" equipment on the job includes a D4600 Engine powering a ¾ yd. shovel, and three D7 Tractors for 'dozing work.

Your "Caterpillar" dealer is well equipped to serve you with complete stocks of parts and factory-trained servicemen. Talk over your power problems with him. Let him show you what "Cat" Diesels can do for you.

"Caterpillar" Independent Gasoline Starting Engine

This 2-cylinder engine is the heart of the all-weather starting system in "Caterpillar" Diesels – a system that's simple, dependable, easily maintained and always ready. In operation its pinion engages with the Diesel engine flywheel and spins the Diesel with compression off.

At the same time, the lube oil in the Diesel is circulated, and because the starting engine's exhaust and water systems are interconnected with the Diesel, the water, liners, precombustion chambers, etc., of the Diesel are warmed. This "conditions" the Diesel for starting before any load is thrown on it. The starting engine also has ample power to spin the Diesel with compression on for as long as may be necessary.

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CATERPILLAR DIESEL

REG. U. S. PAT. OFF.

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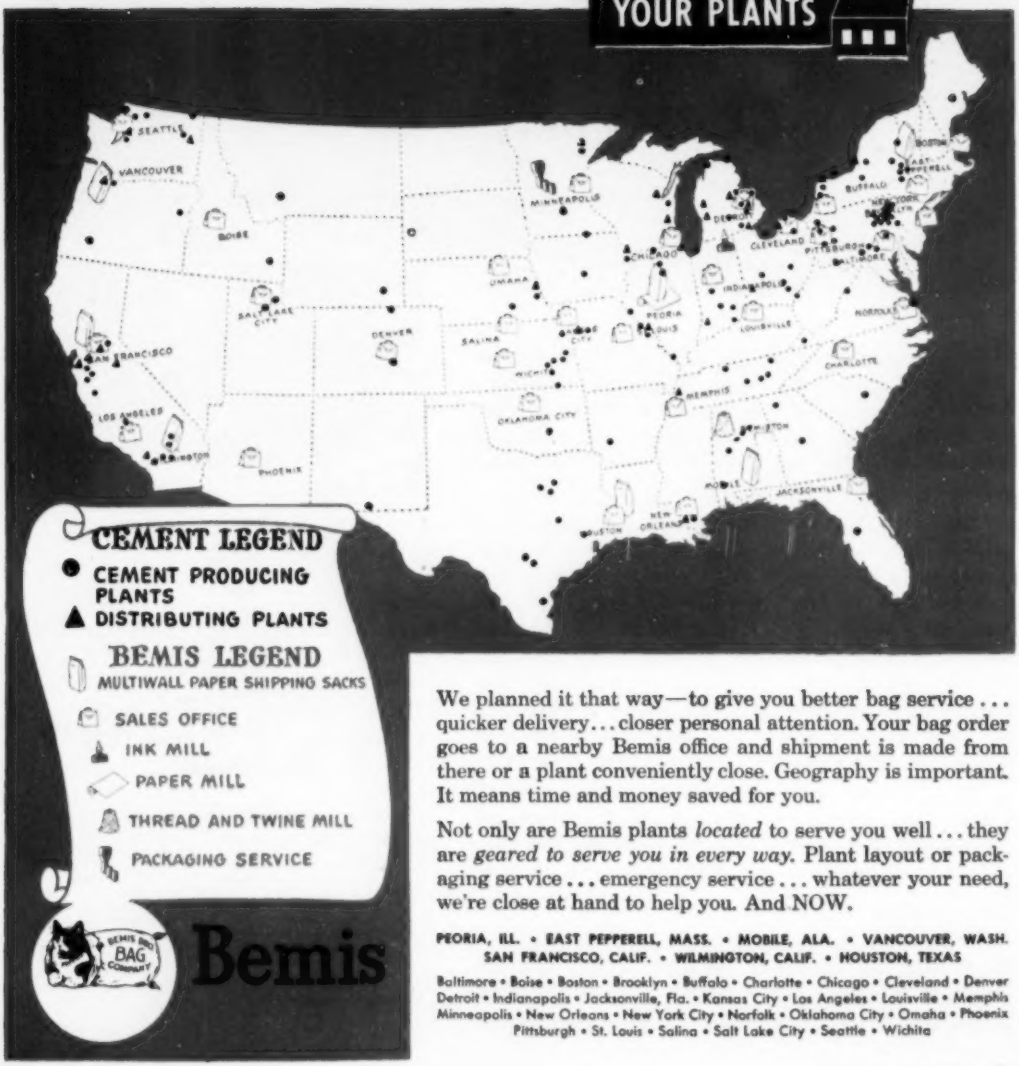
There's a good reason why..

are near



We planned it that way—to give you better bag service . . . quicker delivery . . . closer personal attention. Your bag order goes to a nearby Bemis office and shipment is made from there or a plant conveniently close. Geography is important. It means time and money saved for you.

Not only are Bemis plants *located* to serve you well . . . they are *geared to serve you in every way.* Plant layout or packaging service . . . emergency service . . . whatever your need, we're close at hand to help you. And NOW.

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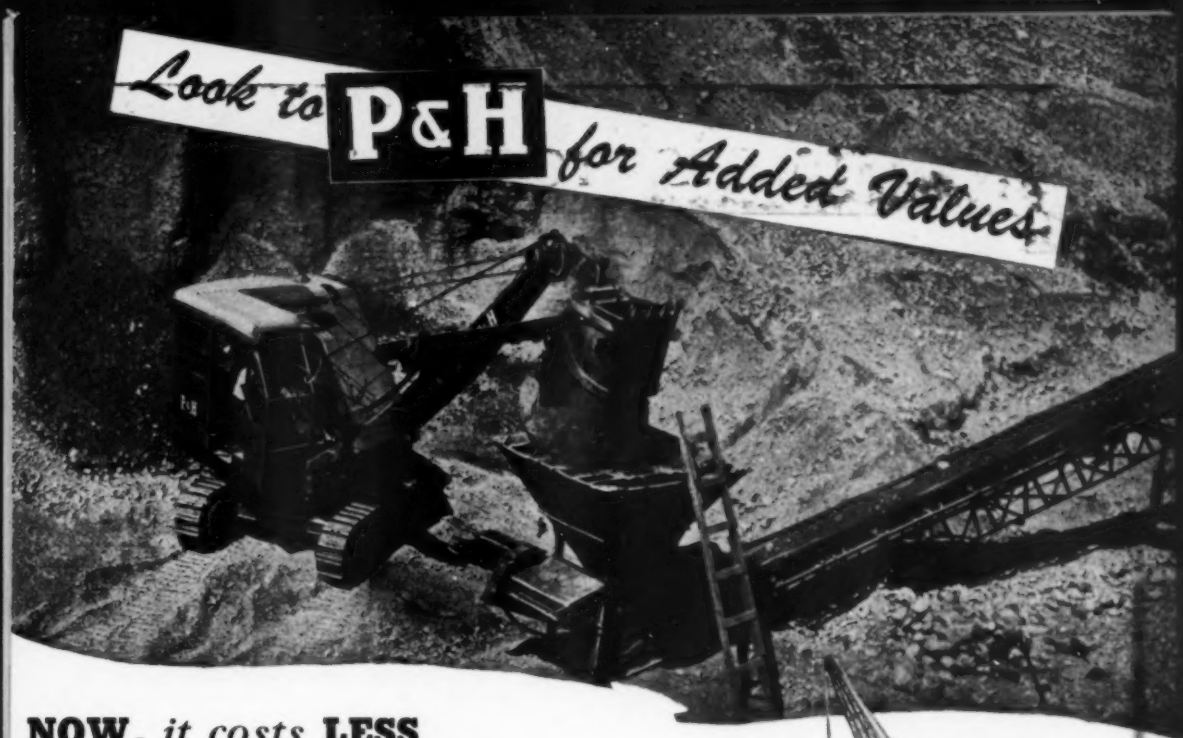


NOW, *it costs* LESS *to do your jobs* BETTER!

In every one of these operations, materials are being moved and handled for less—thanks to the continuous, cost-cutting performance of the P&H.

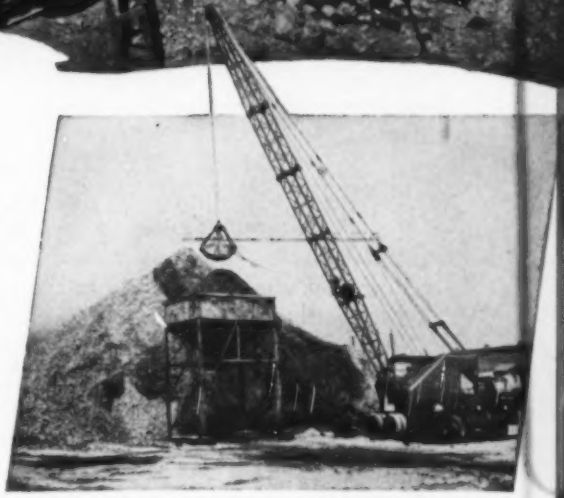
Of the many P&H Added Values, these alone will account for important savings for you. Add all the others and you know why so many operators, mindful of today's changing conditions, are putting P&H Excavators in their pits and yards.

HYDRAULIC CONTROL—years-ahead engineering makes P&H's faster and simpler to operate with a velvety action that's easier on man and machine.

PLANETARY CHAIN CROWD—P&H pioneered it; made it more accurate, more rapid reversing. Outlasts 25 to 30 crowd cables.

TRUE TRACTOR TYPE CRAWLERS—smoother, more maneuverable and dependable travel; easier steering; ends usual crawler troubles.

WELDED CONSTRUCTION THROUGHOUT—rolled alloy steels make them huskier, shockproof; no needless deadweight.



P&H DUAL-POWERED TRUCK CRANES. One engine right for faster travel, another with power right for faster working. Converts for all classes of work. Available with P&H Remote Control.

P&H CRAWLER EXCAVATORS. Built in all sizes up to 6 cu. yds.; gasoline, Diesel or electric powered. Write for literature.

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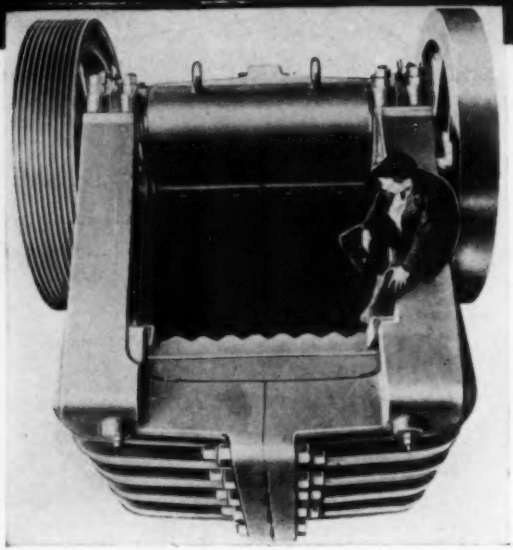
Gentlemen:

Send complete information covering P&H models from ——— to ——— cubic yards.
( ) Also P&H Truck Cranes. I am attaching coupon to my business letterhead.

Name .....
Company ..... Position .....
Address .....
City ..... Zone ..... State .....



KENNEDY
SWING JAW CRUSHERS

Frames built of HERCULITE steel; tensile strength up to 60,000 pounds per square inch.

Swing jaws, 18" and larger, are reversible; two wears obtained.

Wide faced belt and fly-wheel for non-slip power.

40 DIFFERENT SIZES AVAILABLE FROM 4" X 6" TO 66" X 96"

Powerful crushers, designed to handle heavy loads. A superior reduction unit which produces large rock tonnage, economically and efficiently. When you buy crushing equipment, keep these *exclusive* KVS features in mind.

Both jaws "share the load"; swing jaw and stationary jaw set at the same angle; less power required for swinging and crushing; both jaws interchangeable and reversible end for end; both identical in length.

Here's a properly designed machine that delivers bigger loads at a LOW operating cost. Sturdier construction throughout assures longer life, less time lost through breakdowns. These basic built-in features are pertinent reasons why KVS crushers continue to earn larger profits for their users.

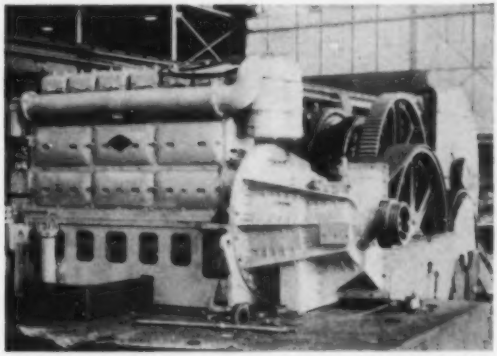
Long life adds many dollars to earning capacity . . . helps every crusher pay its initial cost quickly. Used by leading producers of aggregates from coast-to-coast. Their endorsement proves that "It Costs Less To Own The Best." Specify KVS and enjoy top quality.

Send for Bulletin describing, fully, all types of KVS crushers

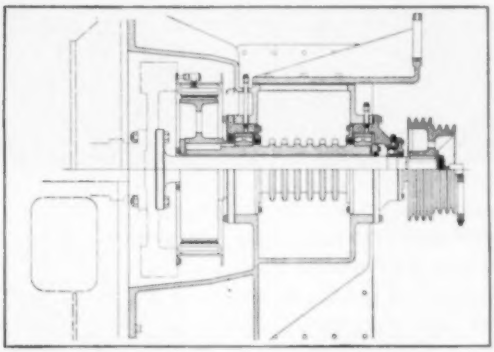
KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

Torrington Spherical Roller Bearings operate smoothly under load in Lima-Hamilton Power Shovels

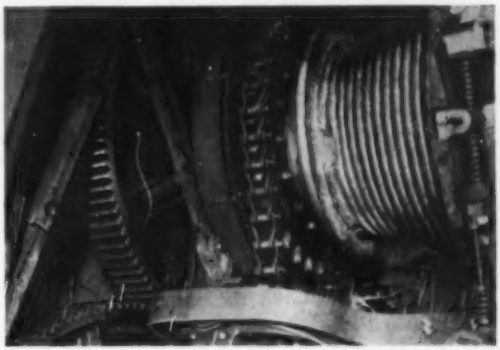
Every bite of the 6-yard dipper of this power shovel, built by Lima-Hamilton Corporation, subjects working parts to heavy loads. On the power take-off shaft, Torrington Spherical Roller Bearings provide freedom of operation despite deflection, and assure long, trouble-free service life.



The shovel is driven from this massive power take-off assembly through the chain drive and gear system at the right. Power is transmitted efficiently through a sprocket drive mounted on two Torrington Spherical Roller Bearings. These bearings carry thrust loads, preventing shaft end play.



Cross-section of the power take-off assembly shows how the Spherical Roller Bearings are used to provide automatic self-alignment. Uneven loading cannot develop under deflection. Thus, when loads are heaviest and the full bearing capacity most needed, the full area of roller-to-race contact is maintained.



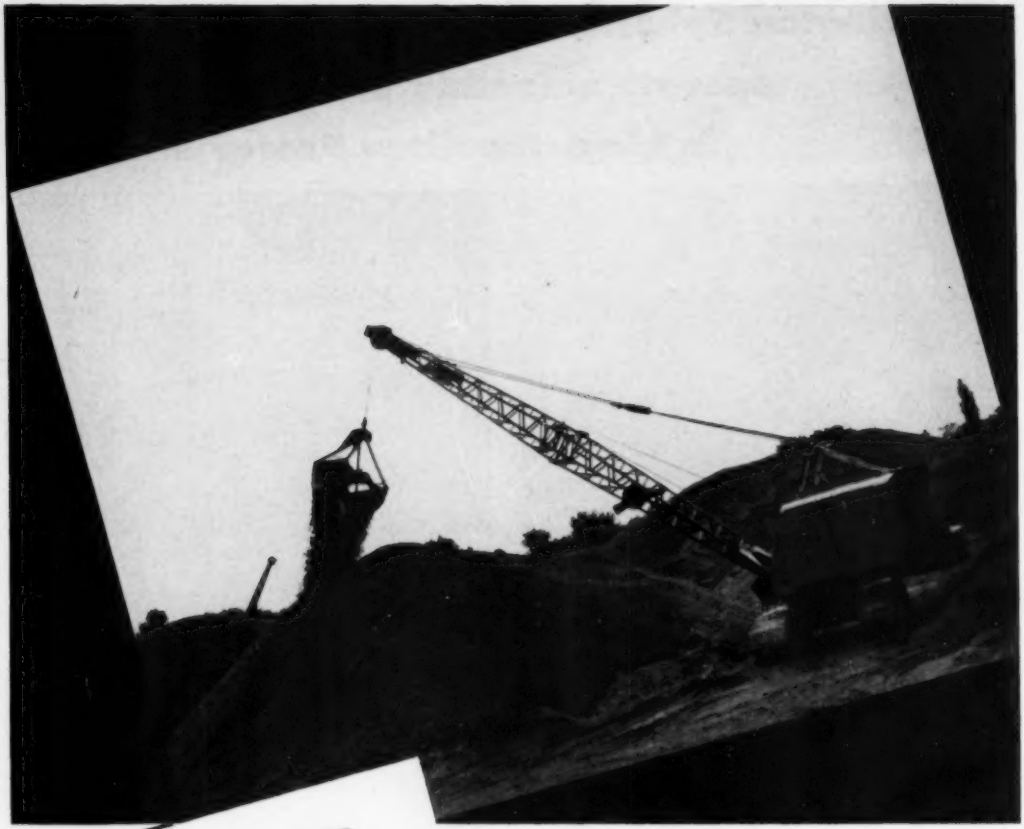
On the rear hoist drum shaft, two Torrington Straight Radial Roller Bearings are used in the retract clutch housing. These bearings maintain concentricity of the shaft and housing for the life of the machine. In addition, Needle Bearings are used on lever shafts to provide high capacity with compact design.

High load capacity, free-rolling self-alignment and precision construction combine in Torrington Spherical Roller Bearings to assure long service life under adverse load conditions. For help in applying them to your equipment, call on our engineering staff. The Torrington Company, South Bend 21, Ind., or Torrington, Conn. District offices and distributors in principal cities of United States and Canada.

TORRINGTON SPHERICAL ROLLER **BEARINGS**

Spherical Roller • Tapered Roller • Straight Roller

Needle • Ball • Needle Rollers



GET BETTER "60-40" MIX WITH A BAY CITY....

Getting a better "60-40" mix and doing it faster, this Model 650 is one of a pair of BAY CITY cranes working for the Northville Sand & Gravel Co., Northville, Michigan. Independent boom hoist, booster clutches for real finger-tip control, and big 1¼ yard bucket enables operator to maintain high production and do accurate casting for better mixing. Helical cut gears . . . heavy-duty swingers . . . tandem drums in ball bearing means smoother, all-around operation. Rugged BAY CITY construction means longer life and lower maintenance. Whatever job you're doing, there's a BAY CITY that can do it better. Why not write today for full information.

BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

BAY CITY SHOVELS INC., BAY CITY, MICHIGAN See your nearest Bay City dealer for excavating and material handling equipment in sizes from ⅜ to 1¼ yard with crane rating up to 25 tons. Both crawler and pneumatic tire mountings.

SO FRICTIONLESS

—that even a sensitive stethoscope can't detect the slightest scratching of your fingernail!

CHRYSLER SUPERFINISH

. . . the Chrysler-developed method of surface finishing vital engine parts, *comes closer to eliminating friction and wear than any finishing method ever devised!*

Superfinishing removes the surface roughness left by machining. It produces an almost unbelievable mirror smoothness—far beyond the limits of grinding, honing or lapping. What is left is actually *polished base metal.*

Superfinished parts fit closer. They wear longer. They perform better. They prevent excessive loosening and surface scratching which causes loss of power and efficiency. That means greater utilization of the advantages that come from higher speeds and higher compression ratios.

All friction surfaces in Chrysler Industrial Engines are superfinished. And there you have one of the big reasons why Chrysler Industrial Engines are out-performing, out-lasting and out-economizing similarly rated engines on all sorts of jobs everywhere.

It pays to power and re-power with a Chrysler. See your Chrysler Industrial Engine Dealer or write us. Parts and service quickly available. ***Industrial Engine Division, Chrysler Corporation, Detroit 31, Mich.***

CHRYSLER

Industrial Engines and Power Units

HORSEPOWER WITH A PEDIGREE

BLASTED ROCK
. . . a soft job for tough TRAXCAVATORS

HANDLING shot rock is rugged work —TRAXCAVATORS make it easy. Whether they're working at the quarry face or in the pit, whether they're loading trucks or stockpiling—TRAXCAVATORS have the heft to "dig in" and dig out more material faster and cheaper.

This big T7 TRAXCAVATOR shown above is loading rock to be hauled to the crusher at the George W. Kerford Quarry Company at Atchison, Kansas.

In mining operations all over the country — TRAXCAVATORS are performing a multitude of jobs: digging, stripping, stockpiling, feeding hoppers and crushers, loading trucks, maintaining access roads, removing snow and other hauling and lifting jobs.

Get the facts on TRAXCAVATORS . . . Call on your nearest Trackson-"Caterpillar" dealer or write direct to the TRACKSON COMPANY, Milwaukee 1, Wisconsin. Dept. PQ-129.

TRAXCAVATOR
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The Original Tractor Excavator

Good Grinding Mill Installations Don't "Just Happen"

More than 45 years of practical experience in making profitable grinding equipment is behind every grinding recommendation made by Traylor engineers. Through the years, Traylor has kept ahead of the industry's ever-increasing need for more efficient grinding. Built into Traylor Grinding Mills are features which permit economies in power requirements and maintenance costs and result in increased tonnage of proper fineness. These features, of which there are many, proven *in the field*, are the reasons for the acknowledged superiority of Traylor Grinding Mills. Choose the type of mill you need; Ball, Rod, Tube or Pebble, but choose a Traylor!

BE SURE YOUR NEXT MILL INCLUDES THESE

TRAYLOR FEATURES

- All-welded steel shell.
- The best heads for your purpose, either all welded or detachable with trunnions cast integral.
- Extra-large bearings of Meehanite metal* with bearing bases babbitted.
- Precision cut steel driving gear, faced and shouldered on both sides.
- Husky, well designed feeder with wear points renewable.
- Liner selected from a complete range which includes Lorain type.
- Choice of flat belt, V belt, direct connected or speed reducer drive.
- Leak-tight manhole covers.

Write for complete details and data today!

TRAYLOR ENGINEERING & MANUFACTURING CO.
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*Reg. U.S. Pat. Off.

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GRINDING MILLS
Rotary Kilns . Coolers
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Crushing Rolls

A "TRAYLOR" LEADS TO GREATER PROFITS

Use DENVER "Sub-A" (ACID TYPE) Flotation Machines

for treating:

Silica Sand
Feldspar
Mica
Kyanite
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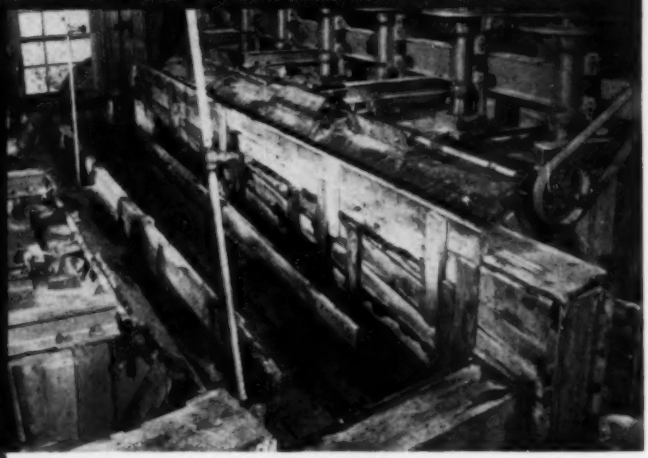
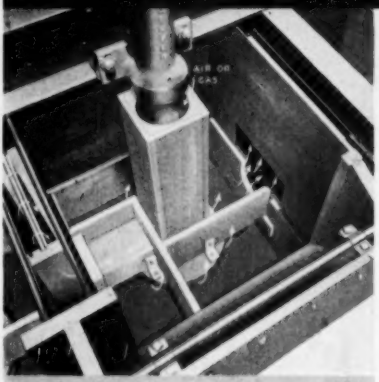
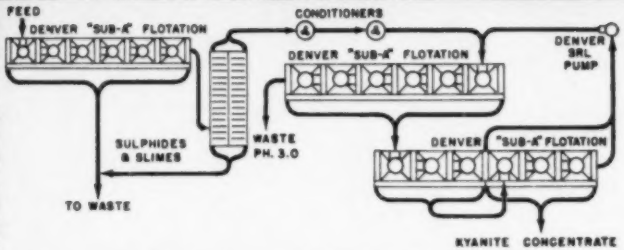
and other

Non-metallics







Denver "Sub-A's" treat highly acid kyanite pulp at Commercialores, Inc., Clover, South Carolina

Read this complete story in July 1949 Pit and Quarry.

Following fine grinding in a 4' x 10' Denver Rod Mill, a 6-cell No. 15 Denver "Sub-A" Flotation Machine removes FES_2. Tailings (containing the kyanite) of this pyrite circuit are deslimed and conditioned before going to the first 6-cell No. 18 (28 x 28) Denver "Sub-A" (Acid Type) Flotation Machine which produces a rougher concentrate from this highly acid pulp (pH. 3.0). The first three cells of second bank operate as a primary cleaner while the last three make a finished kyanite concentrate. No pumps are used in this cleaning and recleaning operation which utilizes the Denver gravity flow principle.

Flexibility of these machines makes it possible to feed from any quadrant or to remove tailings from any cell. Rubber-molded-to-metal wearing parts give greatest protection against abrasive and corrosive pulps. These factors are important in any flotation circuit.

If you have a Flotation Problem, write for Bulletin No. F10-B29.

Check these features:

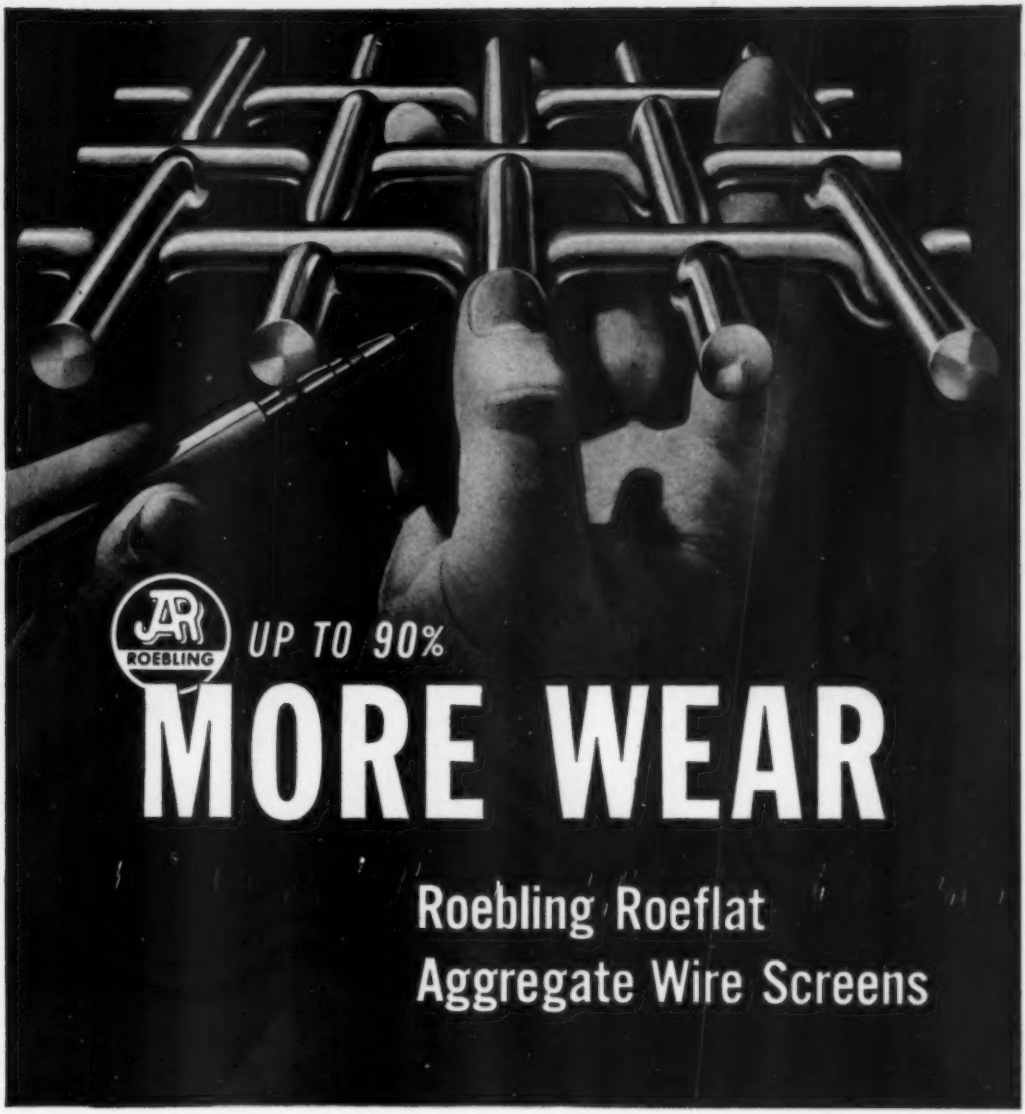
- **Wood construction to handle acid pulp.**
- **Corrosion resistant fittings.**
- **Molded rubber wearing parts for abrasion and corrosion resistance.**
- **Flexibility permits feeding or tailing removal in any cell.**
- **Gravity return of concentrate for recleaning makes fewer pumps necessary.**

"The firm that makes its friends happier, healthier and wealthier"

DENVER EQUIPMENT 24 HOUR SERVICE COMPANY

DENVER EQUIPMENT COMPANY
1408 17TH STREET • DENVER 17, COLORADO

DENVER • NEW YORK CITY • CHICAGO • TORONTO • VANCOUVER • MEXICO CITY • LONDON • JOHANNESBURG • RICHMOND, AUSTRALIA



CRIMPING that puts the CRIMP in SCREEN COSTS

"HOW COME 90% MORE WEAR?" The answer's easy . . . it's Roebling ROEFLAT, an improved kind of wire screen. The wire lies flat except at the short crimps . . . has 75% more wearing surface . . . gives up to 90% more working life and wear with no sacrifice of working area . . . slashes screen costs.

But ROEFLAT users get other profitable advantages, too. ROEFLAT'S smooth, level surface causes less clogging and blinding than ordinary screens. Its precision openings assure uniform grading and new screening efficiency.

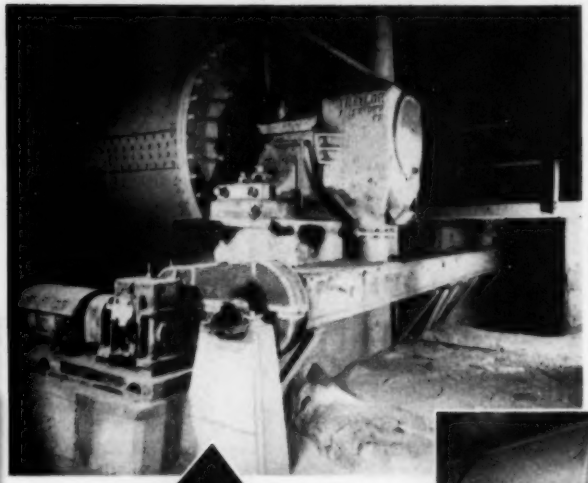
Roebling ROEFLAT is available in practically any type of construction, such as ROETON, ROESLOT or square mesh, with openings of ¾-inch or larger. Before placing your next screen order, find out whether ROEFLAT will give *you* improved service. Write for Catalog W-903.

WOVEN WIRE FABRICS DIVISION
OF JOHN A. ROEBLING'S SONS COMPANY
ROEBLING, NEW JERSEY

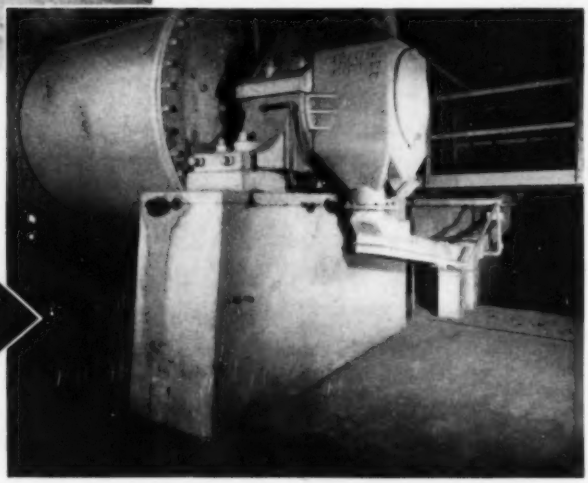
ROEBLING
☆ A CENTURY OF CONFIDENCE ☆

Two pictures that tell a story

ABOUT THE F-H AIRSLIDE



BEFORE AND AFTER



These two views, of the same installation, show the conveying of cement raw material from two tube mills . . . the old and new way.

BEFORE: Material was conveyed by a 12-inch screw conveyor, driven through a speed reducer, sprocket and chain, by a 5-hp. motor. Result—dusty and noisy; excessive power cost; lubrication; wear; hazardous moving parts. The ever present possibility of a breakdown of these many mechanical parts, with resultant shut-down for repairs or replacement, with consequent costly down-time and labor charges.

AFTER: Material is now conveyed by two 8-inch Airslides. Result—elimination of dust, noise, lubrication, wear, and hazardous moving parts. Power, (air for aeration of material being conveyed) approximately one-eighth horsepower for the two Airslides shown in the illustration.

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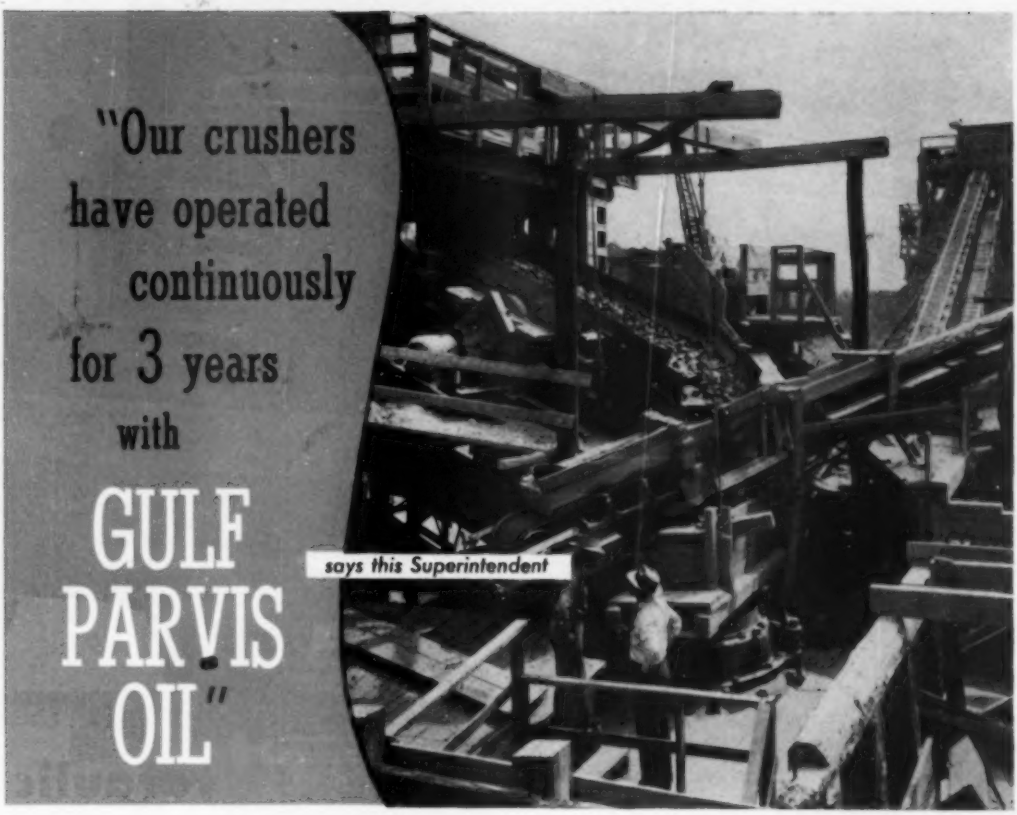
FULLER-KINYON, FULLER-FLUXO, AIRVEYOR, F-H AIRSLIDE CONVEYING SYSTEMS . . . ROTARY FEEDERS AND VALVES . . . ROTARY COMPRESSORS AND VACUUM PUMPS . . . INCLINED-GRATE COOLER . . . DRY PULVERIZED-MATERIAL COOLER . . . MATERIAL-LEVEL INDICATOR . . . AERATION UNITS . . . AIRLIFT . . . CONSTANT-HEAD FEEDER . . . SLURRY VALVES . . . MOTION SAFETY SWITCH . . . SAMPLERS

F-H-9



"No bearing failures, no unscheduled shutdowns during that period"

"We haven't shut these crushers down for three years—not even for the usual annual overhaul," says the Superintendent of this Southern stone company. "During that time we haven't replaced a single bearing, a record we credit to Gulf Parvis Oil. As a matter of fact, bearing replacements have been negligible during the entire life of this equipment, a direct result of proper lubrication."

Quite a record for rock-crushing equipment—yes, but typical of the results obtained when the most suitable Gulf Quality Lubricant is selected for a particular job.

Gulf makes available a complete line of quality oils and greases for quarry equipment. Among them are special extreme-pressure lubricants that protect reduction gears against overloads, ball and roller bearing lubricants that reduce wear and replacements, heavy-duty engine oils that help keep engines clean and efficient, and long-lasting, sludge-resisting oils for circulating systems.

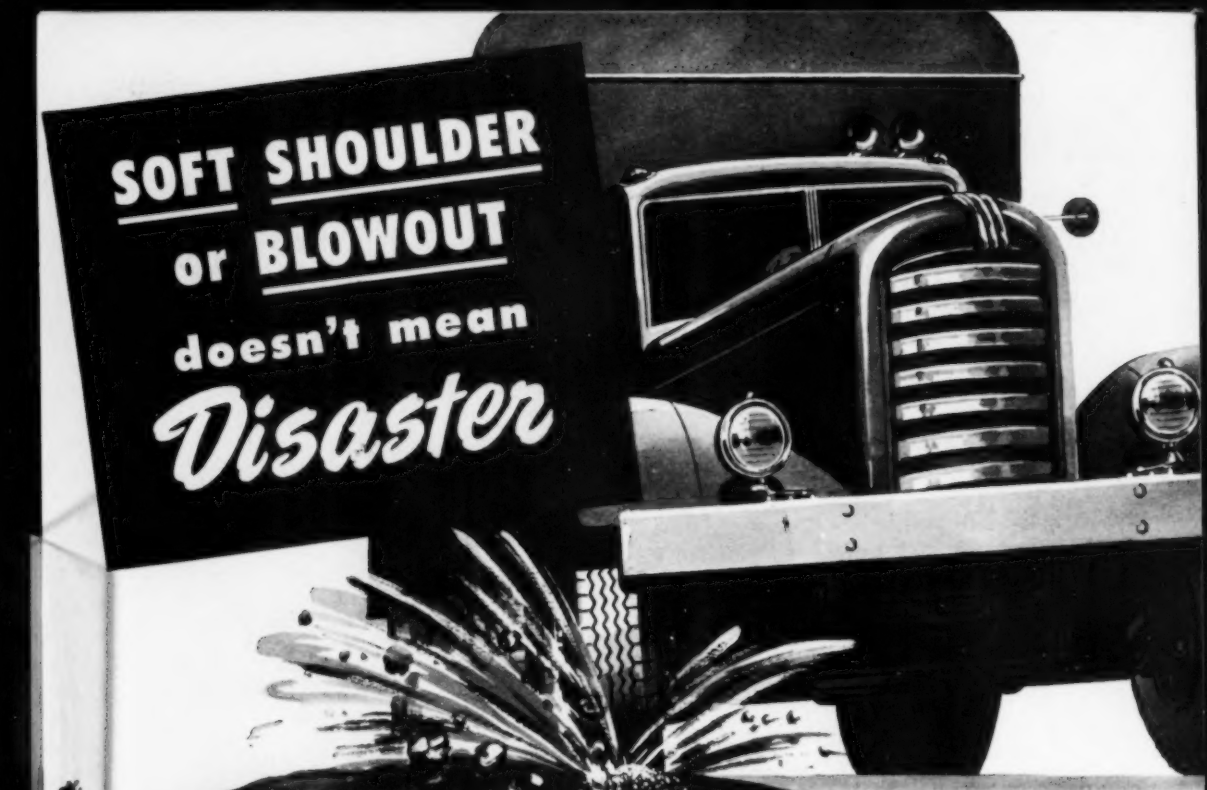
If you have a problem in the lubrication and maintenance of your equipment, it will pay you to investigate these cost-saving lubricants. They can help you reduce wear, prevent unscheduled shutdowns, increase output. Write, wire, or phone your nearest Gulf office today.

Gulf Oil Corporation · Gulf Refining Company

Offices in Principal Cities in 30 States

GULF INDUSTRIAL LUBRICATION

SOFT SHOULDER or BLOWOUT doesn't mean Disaster



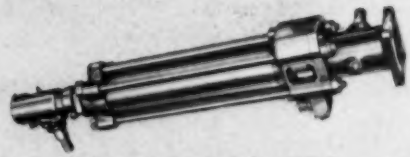
When You Have VICKERS Hydraulic POWER STEERING

There's less hazard when forced off the road onto soft, rocky, rutted or snow banked shoulders . . . when you have Vickers Hydraulic Power Steering. The steering mechanism is hydraulically locked against any road condition reaction. The vehicle can't swerve from road reaction. There's no "wheel fight" to wrench the steering wheel out of the driver's hands. Pull-back onto the road requires only a trigger-pull on the steering wheel.

Vickers Hydraulic Power Steering is safer . . . effortless . . . provides hydraulic power at instant command of the driver to meet any steering requirements. This extra-quick steering increases the ability to maneuver in emergency. The driver is less tired, more alert.

Vickers Hydraulic Power Steering can be used as original equipment, or adapted to most trucks and other vehicles now in service. Write for Bulletins 47-30 and 49-52 covering further details and specifications.

VICKERS
HYDRAULIC POWER STEERING
is Effortless, Positive, Shockless



Vickers Hydraulic Steering Booster with Integral Overload Relief Valve. Bulletin 47-30a.

Vickers Balanced Vane Type Pump is Engine Driven. Bulletins 38-12 and 48-52.

VICKERS Incorporated
DIVISION OF SPERRY CORPORATION
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ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

G-200R Wagon Drills, mounting 4" drifters, run 24-foot blast holes

fast drilling at any angle

The flexible mounting of the versatile G-200R Wagon Drill adapts it for drilling vertically, horizontally, or at any desired angle — line drilling, toe-hole drilling or bench drilling. The sliding cone, with a 36-inch adjustment, offsets ground irregularities or uneven steel lengths.

The G-200R provides fast and easy operation of the more powerful CP drifter drills — with great reduction in drilling costs. Its CP rotary air motor gives a steady feed and quick return, with plenty of power for pulling tight steel.

The wheels can be quickly turned at right angles (tandem) to facilitate line drilling or drilling close to ledge or wall.

Available with CP-50N (3"), CP-60N (3½"), or CP-70 (4") drifters.

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new

Style S standard

Outstanding—with its new, heavier design *and* many Telsmith-engineered improvements tested and proved by years of operation—the new Style S Standard Gyrasphere has . . .

1. Longer Crushing Stroke . . . for greater capacity.

2. Larger Roller-Thrust Bearings . . . both now located at top of eccentric . . . to transmit crushing pressures from *bottom* of head direct into main frame.

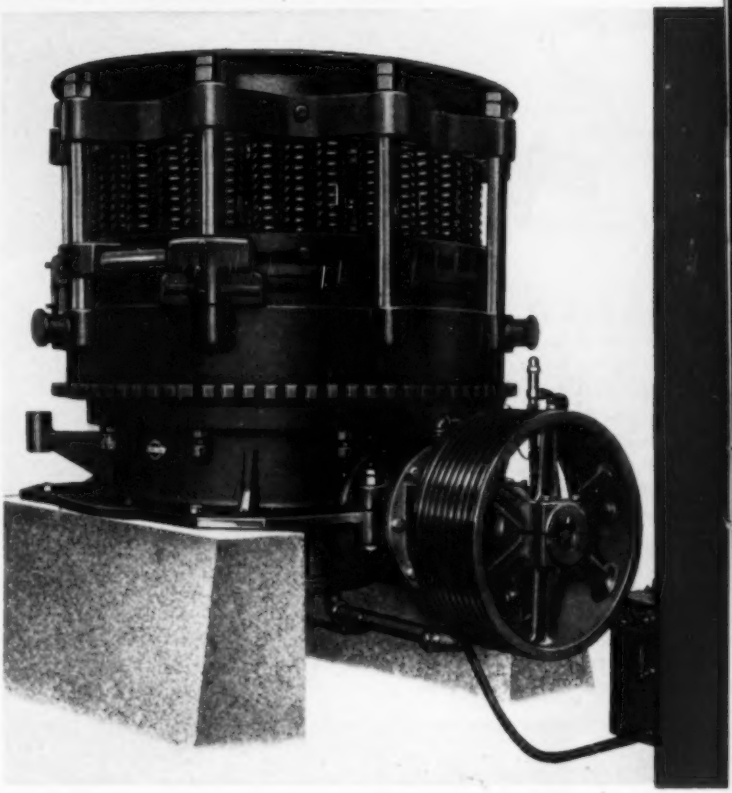
3. Eccentric Bearings have *more* bearing area in the upper zone of greatest crushing pressures.

4. Longer Springs . . . to pass larger pieces of tramp iron.

5. New Location of drive gears . . . for more economical operation.

6. Easier accessibility . . . makes maintenance quicker, simpler, and cheaper.

7. Available with either coarse or medium bowl.



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SMITH ENGINEERING WORKS

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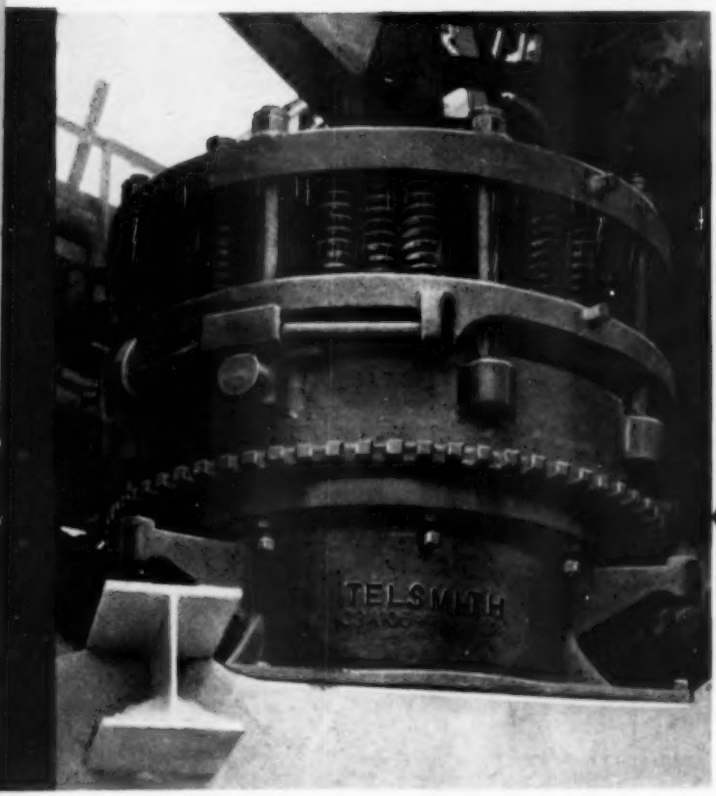
TELSMITH

Gyraspheres

Style FC fine crushing



With all the new tested and proved features of the Style S . . . the new Style FC Gyrasphere has these *additional* fine crushing improvements . . .

1. New Feed Distributor . . . for even feeding and more uniform product.

2. Different Shape of Mantle and Concave with longer parallel crushing zone for finer product.

3. New Gun-Lock type mantle and concave holding devices . . . automatically self-tightening . . . easier to change.

4. More Springs for greater crushing pressures.

5. Available with either medium or fine bowl.

36FC Fine Crushing Gyrasphere at plant of New Enterprise Stone & Lime Co., Ashcom, Pa.

Send for Bulletin No. 274

YS-10

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SIMPLICITY HORIZONTAL SCREENS

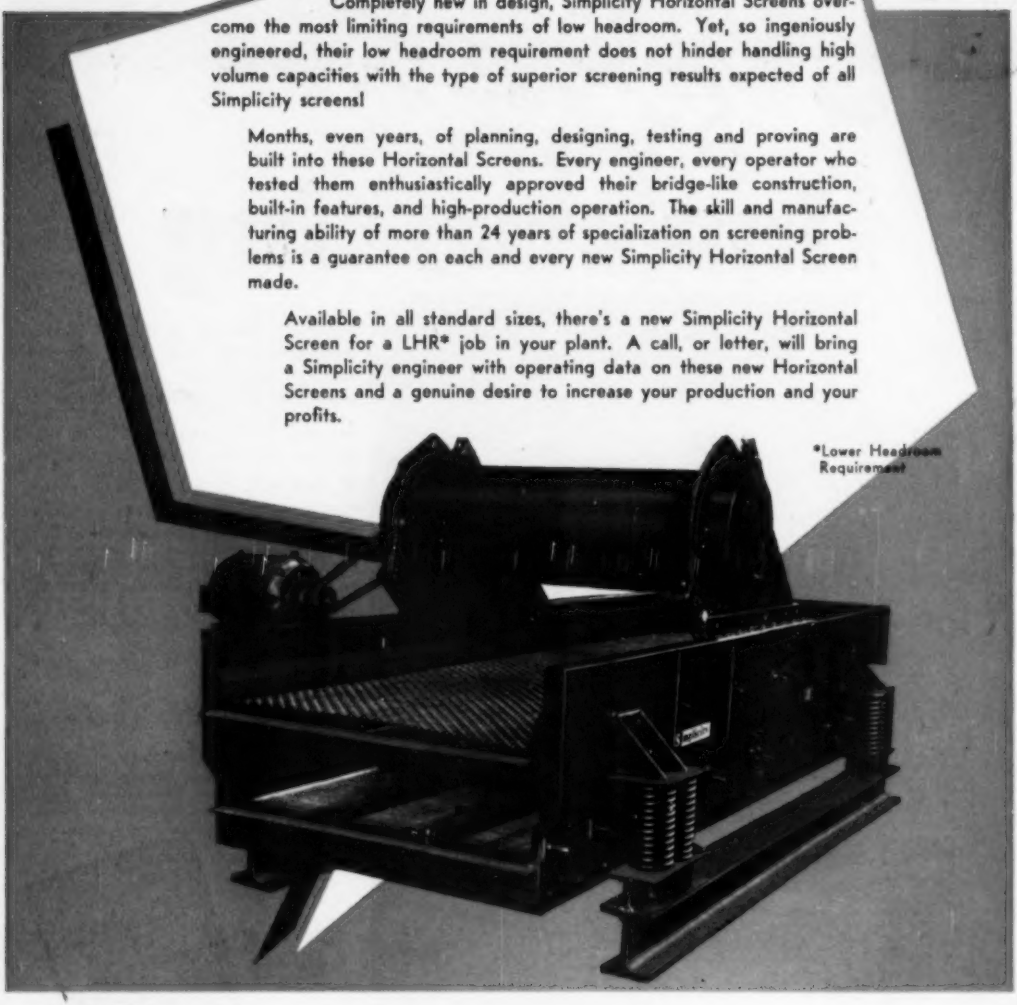
Now Available
Built in all standard sizes

Completely new in design, Simplicity Horizontal Screens overcome the most limiting requirements of low headroom. Yet, so ingeniously engineered, their low headroom requirement does not hinder handling high volume capacities with the type of superior screening results expected of all Simplicity screens!

Months, even years, of planning, designing, testing and proving are built into these Horizontal Screens. Every engineer, every operator who tested them enthusiastically approved their bridge-like construction, built-in features, and high-production operation. The skill and manufacturing ability of more than 24 years of specialization on screening problems is a guarantee on each and every new Simplicity Horizontal Screen made.

Available in all standard sizes, there's a new Simplicity Horizontal Screen for a LHR* job in your plant. A call, or letter, will bring a Simplicity engineer with operating data on these new Horizontal Screens and a genuine desire to increase your production and your profits.

*Lower Headroom Requirement



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TRADE MARK REGISTERED

SIMPLICITY ENGINEERING COMPANY • DURAND, MICHIGAN

SEE YOU AT THE STEVENS! IN CHICAGO, JANUARY 22-28, NATIONAL SAND AND GRAVEL ASSOCIATION, 34TH ANNUAL CONVENTION AND EXHIBIT

for space cloth that's SUPER-TIGHT

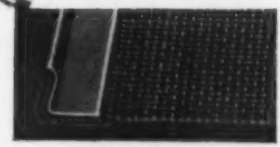
and SUPER·TOUGH

specify SUPER-TEMPERED PRECISION SCREENS

For really tough jobs . . . where screens must stay tight and accurate under terrific punishment . . . you can't beat SUPER-TEMPERED Precision Screens.

Made from super-tempered steel, and woven on specially designed hydraulic looms, SUPER-TEMPERED Precision Screens have been subjected to the severest operating conditions in scores of plants and acclaimed the longest-wearing, most economical wire cloth made.

On your next order, specify SUPER-TEMPERED Precision Screens. Test them against your present screens and discover how they cut maintenance costs to minimum proportions. Write our nearest office for full details.



SUPER-TEMPERED Precision Screens are available in any length required for vibrating screen or trommel; with welded, hooked or reinforced edge to fit any type of vibrator.

SUPER-TEMPERED PRECISION SCREENS

CF&I

A PRODUCT OF WICKWIRE SPENCER STEEL DIVISION OF THE COLORADO FUEL & IRON CORP.

Sales Office and Plant — Clinton, Mass. Branch Offices in Key Cities

INLAND AGGREGATES COMPANY, INC.
uses *SYMONS CONE CRUSHER*
for fine Reduction Crushing

TO the hundreds of Symons Cone Crushers operating in California, another has been added to the long list of satisfied users with installation of a 3-foot Cone in the new plant of the Inland Aggregates Co. at Niles. Oversize from a 1¼" mesh single-deck screen is crushed for final grading into ¾", ¼" and ⅛" sizes. It's another typical example of the high capacity fine reduction crushing of Symons Cones that keeps production costs low for so many outstanding aggregate producers.

Symons Cone Crushers are available in Standard, Short Head and Intermediate types, with capacities from 6 to over 1000 tons per hour. Write for literature on crushers and other Nordberg products.

NORDBERG MFG. CO.

MILWAUKEE 7, WISCONSIN

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Close-up of Symons 3-ft. Cone Crusher, installed at Inland Aggregates Plant to handle all secondary crushing.

C-1049

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Machinery for processing ores and industrial minerals

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Here's The Latest Word on Industrial Explosives!

THE new Atlas catalog is packed with latest information on explosives, blasting supplies, and accessories.

This book gives you facts to help you choose the *right* explosives products for *your* job. It includes up-to-date information about the complete Atlas line of explosives and blasting supplies for construction, quarrying, coal mining, stripping, demolition . . . including ROCKMASTER "16", the latest development in the original milli-second delay blasting system pioneered by Atlas.

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BIG AND FAST

605

KOEHRING HEAVY-DUTY 1½ YD.

Fast Crowd . . .

With the Koehring heavy-duty 605, your operator can crowd at full speed up through the bank. Heavy coil spring on each side of wide boom foot absorbs jars and strains of fast rock handling. Big 37" power clutch requires only 7 lb. average lever pull, yet the operator always retains the "feel" of load.

Fast Retract . . .

Powerful 26" double-band retract clutch gives fast retract speed with perfect control. Double fulcrum units in control-lever linkage eliminate troublesome over-travel of crowd and retract, as well as swing and traction clutches. Speeds up every shovel cycle, cuts operator fatigue . . . and boosts yardage every hour.

Fast Swing . . .

You can use full throttle on the swing, keep swinging fast all day. Big 605 is fast . . . smooth-swinging, because light spiders of inside-band clutches, not heavy drums, are accelerated . . . cool-running, because finned drums rotate continuously. Fast swings save time . . . make each shift more productive.

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Johnson Clamshells Deliver

BIGGER PAYLOADS

● Faster operation

● Lower maintenance costs

● Longer life

Here's why:

1 All-welded construction gives lower center of gravity . . . improves bucket balance . . . concentrates digging power on lips and teeth for maximum penetration and capacity loads every time.

2 Weight, saved in other parts by welding, is put back into thick sides, lips and bottom, where extra strength is needed to take constant pounding of hard, fast drops. Strain points are reinforced.

3 Hard manganese cutting edge, welded to heavy lips stays sharp . . . gets tougher with use. Long wearing, maintains big capacity payload digging efficiency.

4 Stones and dirt from heaped capacity loads can't get at sheaves, cables and lower sheave block. Open lower sheave frame keeps sheave spaces clean; material cannot collect under sheaves.

5 Every big closing sheave runs on two needle bearings, which eliminate friction losses . . . keeps sheaves free-running. Effective seals keep dirt and moisture out.

6 Johnson clamshell buckets dump fast and clean . . . not a single projecting rivet or bolt head inside the smooth, all-welded clams to catch and hold clay or mud. Materials slide out easily.

Fast Dump . . .

Ratchet dipper trip is trigger quick . . . works every time. Release button is handy, right on top of swing lever. Speed in every operation gets more work done. For complete facts on this big, rugged 1½-yard 605 . . . the ½-yard 205, ¾-yard 304, or the new 2½-yard 1005, see or write your Koehring distributor.

Ask your Johnson distributor about the Wide Rehandling, General Purpose and Heavy-Duty Digging types available in sizes from ⅜ to 2½ yards.

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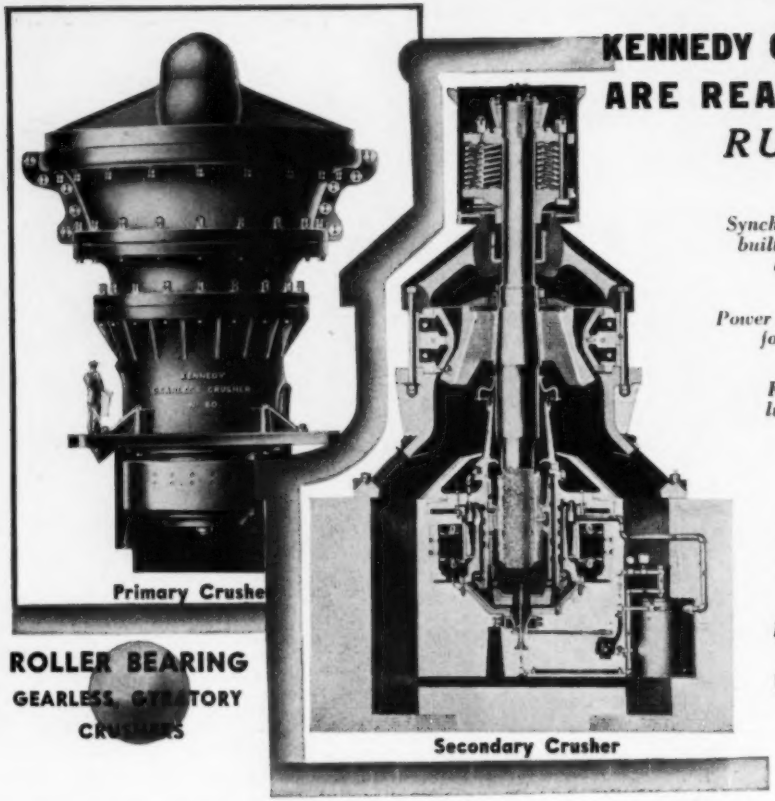

KENNEDY CRUSHERS ARE REALLY . . . *RUGGED!*

Synchronous motor built into pulley assembly

•

Power applied ONLY for crushing

•

Force-feed lubrication

•

No gears to waste power

•

Added power at no added cost

•

Quiet — smooth Frictionless action

•

Varying capacities to serve every purpose

ROLLER BEARING
GEARLESS, GYRATORY
CRUSHERS

Designed and built to produce, economically and consistently, maximum loads of uniform products. Assures efficient service with minimum "time off for repairs" under the most severe operating conditions.

Costs less in the long run because it has a larger capacity; uses less power; holds repair bills to a minimum; produces more and better rock tonnage, faster and at lower cost.

Kennedy Crushers are made in various size units delivering from 12 to 3600 tons per hour. Engineered to serve your exact needs. Fifty years experience in the building of heavy duty crushers is your assurance that "It Costs Less To Own The Best" when you use KVS equipment.

Send for bulletins describing, fully, all types of KVS crushers

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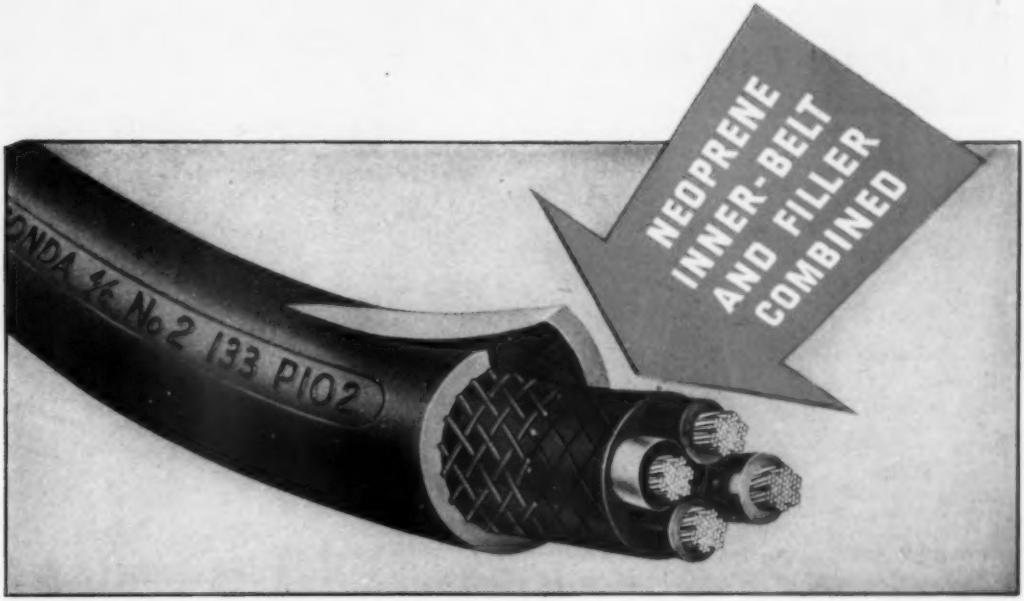

THIS CABLE LASTS LONGER

Because the Inner-Belt Conducts Heat Away

ONE OF THE FEATURES of this new Securityflex cable is the inner-belt and filler combined, of a special *heat-conducting* Neoprene compound. This new inner-belt dissipates heat and provides cooler, safer operation under extreme overloads.

Here is a cable that assures long, continuous service. Engineered construction *eliminates kinking*. Tough flame and abrasion-resistant Neoprene outer jacket stands up under severe abuse. More than ever, it's Securityflex for both safety and economy. *Anaconda Wire and Cable Company, 25 Broadway, New York 4, N.Y.*

HEAT-CONDUCTING
Inner-belt dissipates heat, providing cooler operation under extreme overloads.

FLAME-RESISTANT
Extra-tough Neoprene outer jacket gives valuable protection.

NON-KINKING
Engineered construction eliminates kinking. Seine twine reinforcing resists tearing.

ANACONDA *Securityflex* **CABLE**

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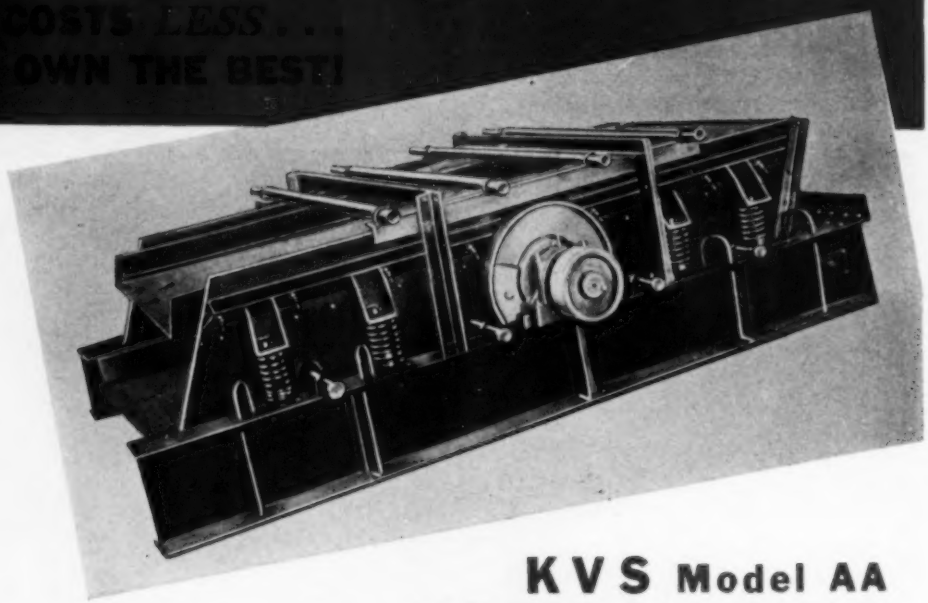
COSTS *LESS* . . .
OWN THE BEST!



KVS Model AA VIBRATING SCREEN

Featuring 95% Screening Efficiency . . .
Low Installation and Maintenance Cost . . .

POSITIVE ACTION ON SCREEN CLOTH *WITHOUT* TRANSMITTING VIBRATION TO SUPPORTING MEMBERS

An essential part of every plant is a vibrating screen that functions properly, at low cost, and remains free from time-consuming breakdowns. KVS screens meet every requirement; serve their specific purpose, steadily and efficiently; are dependable and profitable.

These heavy duty vibrating screens are available in many sizes, each scientifically engineered to perform a definite task. Our engineers will gladly recommend the model and size best suited to your exact needs.

If your present equipment has outlived its usefulness, this is the time to install a KVS screen. Step up your production, improve the quality of your screening, save money and time and earn larger profits. These easy-to-install screens will solve your problem.

No single piece of equipment in your plant will show faster savings than a properly designed screen. Modernize with one of these money-making installations. Enjoy the advantages of continuous, accurate operation by specifying KVS vibrating screens. A short test will prove that "It Costs Less To Own The Best."

Send for Bulletin describing, fully, KVS vibrating screens

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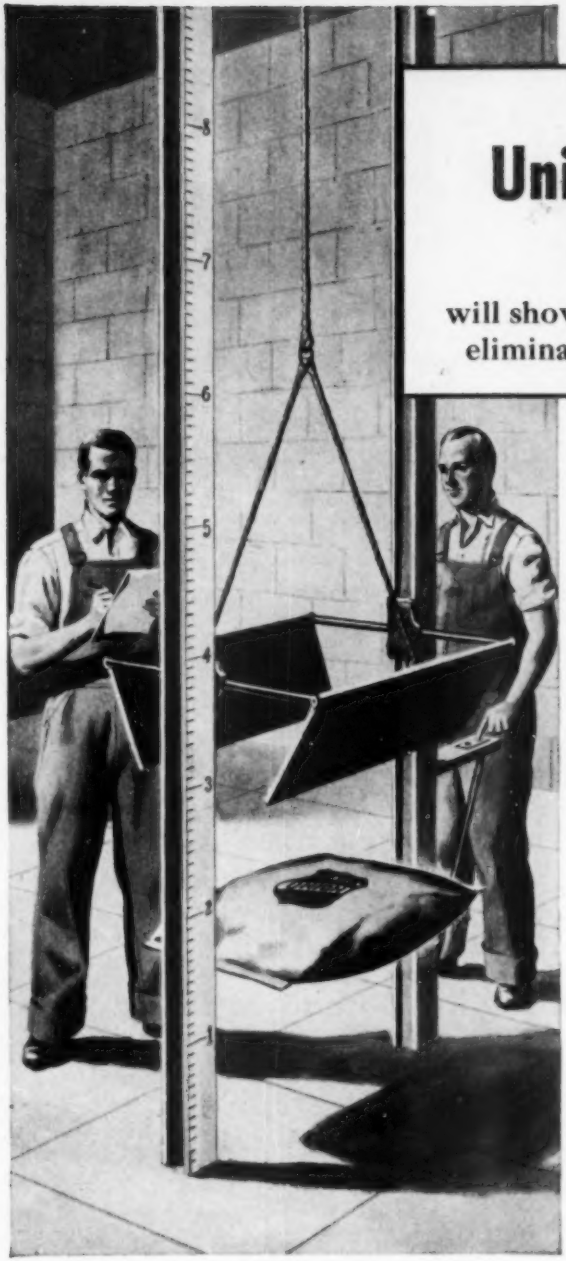

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Union Multiwall Specialist

will show you how quality control eliminates customer complaints!

SHIPPERS of more than 300 different products find Union Multiwall Bags reduce customer complaints and losses in shipping and handling. They are custom-designed with reserve strength for hard knocks.

Continuous testing in Union laboratories leaves nothing to chance. Bag paper is tortured and torn, burst and frayed. Loaded bags are dropped and tumbled and scuffed to discover any weak points, any need for strengthening.

Union Quality Control checks and rechecks every step in the making from timber to finished bag.

This constant checking and testing is a safeguard for every order of Union Multiwall Bags. So when your Union Multiwall representative calls on you, tell him the requirements of your product, its shipping and handling. You can be sure your delivered bags will live up to specifications.

Even if you are now using multiwall bags, your Union representative can give you new ideas on bag construction, packaging and handling that will save you money. So welcome him when he calls!

Multiple Protection

Opens Easily

Prevents Siftage

Empties Clean

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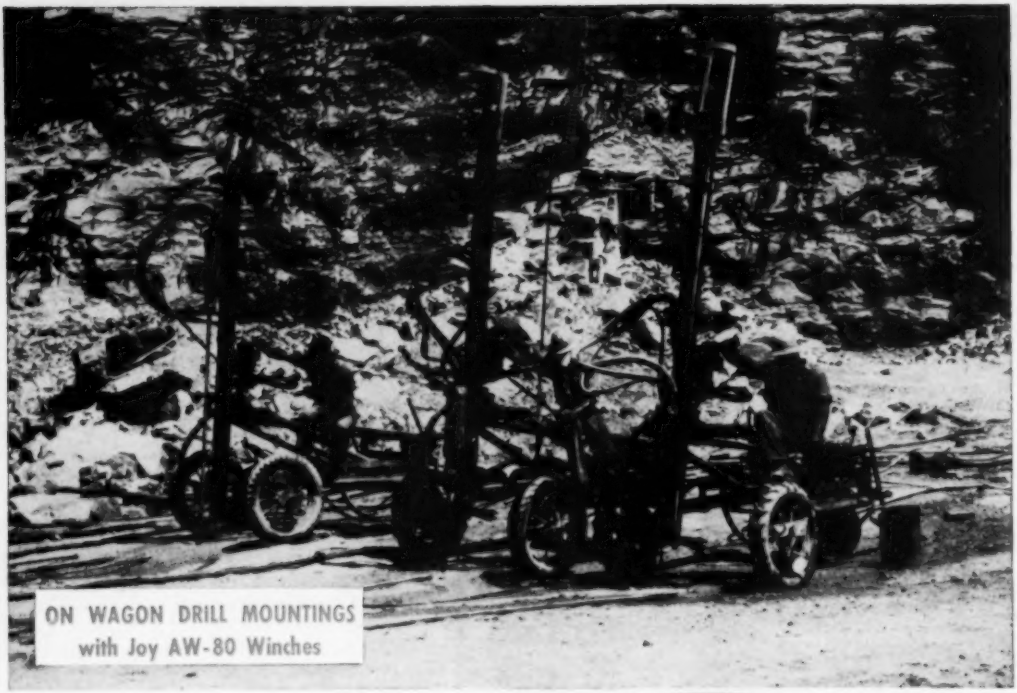
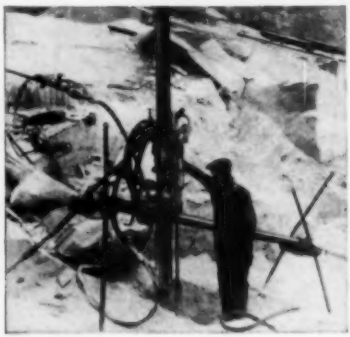


ON WAGON DRILL MOUNTINGS
with Joy AW-80 Winches

Put JOY SILVER STREAK DRIFTERS TO WORK ON YOUR JOB—



ON QUARRY-BAR MOUNTING

Watch daily footage INCREASE and costs per foot go DOWN!

JOY Silver Streak Drifters feature the exclusive *Dual Valve* with positive cushion control. It gives a harder, more powerful punch—literally makes air do more work. What's more, JOY Drifters *last longer*—give you more feet of hole with less maintenance. Exclusive *cadmium plating*, inside and out, inhibits rust, prevents scoring during run-in, and at the same time, adds power by permitting closer piston tolerances. ● Ask for a trial demonstration on JOY Drifters—the T-300, T-350 or T-400—*prove their all-around superiority right on the job!*

Write for Bulletin, or

Consult a Joy Engineer

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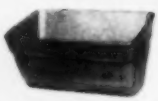

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The 200-ft. rolled earth Downsville Dam will stretch across a half-mile-wide valley of the east branch of the Delaware River. View shows core wall under construction by Walsh-Perini, who also have the contract for 25-mile diversion tunnel.

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at Downsville Dam

A fleet of GM Diesel-powered Euclids is used at Downsville by Walsh-Perini, and by White Oak Excavators, Inc. on highway relocation.

On big construction projects everywhere, you'll find an ever-growing number of General Motors Diesels taking over more and more of the tough jobs.

Shown here are some of the many different jobs these rugged 2-cycle Diesels are doing on Downsville Dam and the $44 million tunnel to carry water toward New York City. Contractors Walsh Construction Co. and B. Perini and Sons, New York, and others on this project, rely on GM Series 71 Diesels because they start fast, pinch pennies on fuel and stay on their feet with little attention.

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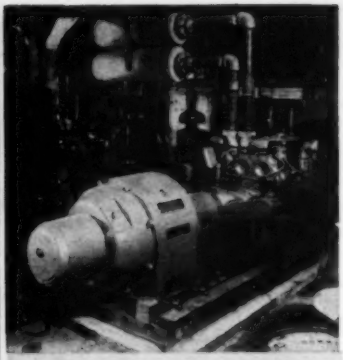
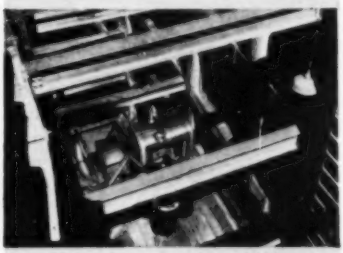


Two GM Diesel Twins drive 200 kw. stand-by electric generators providing emergency power for pumps and compressors.

GM Diesel replaced the original power in this crane, shown placing rock on inlet channel wall.

GM Series 71 2- and 3-cylinder Diesel engines power screens and conveyors on gravel-washing plant of sub-contractor, Cooney Bros.



One of a battery of 13 GM Diesel 3- and 4-cylinder engines used by Walsh-Perini to power water pumps.

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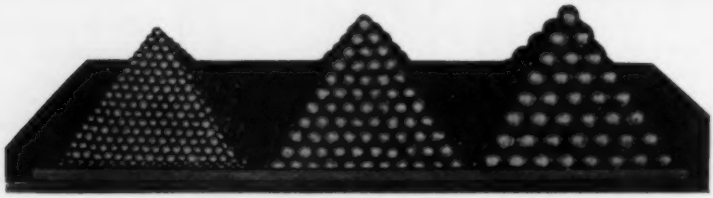

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USED IN CONJUNCTION WITH THE KVS AIR SWEPT TUBE MILL, tests show that maintenance costs with bituminous coal hold costs to 2c per ton. Coal can be pulverized to a degree where it burns like gasoline. Here's proof that "It Costs Less To Own The Best." A KVS engineer will quickly demonstrate how the use of these XX Herculite Balls will cut YOUR grinding costs as much as 50%.

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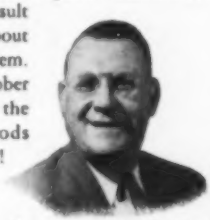

Howard F. St. George, Vice Pres. Shadbolt & Boyd Company Milwaukee, Wis.

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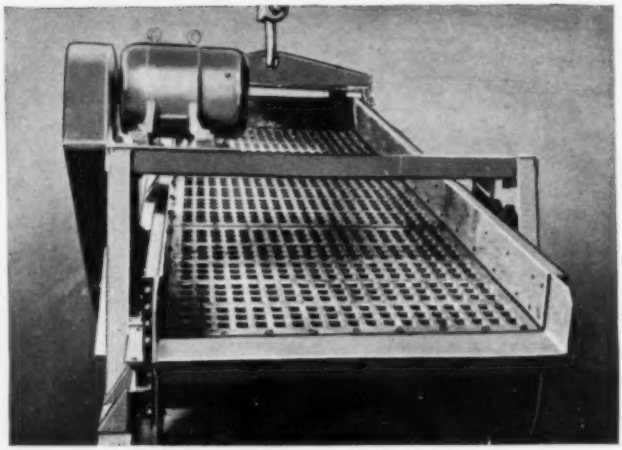

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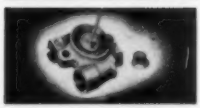
AN IMPROVED BLOWING ACTION that puts air at full line pressure directly into the chuck cavity for better hole blowing.



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Vol. 42 DECEMBER 1949 No. 6

PIT AND QUARRY

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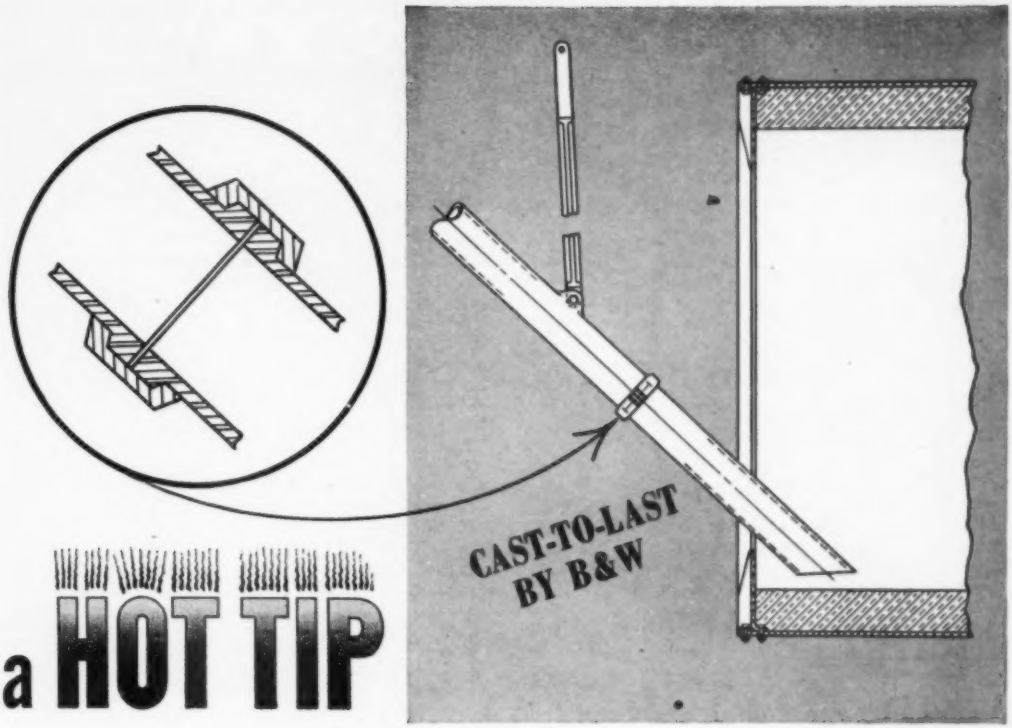

a HOT TIP on feed-pipe economy

Feed-end temperatures of many rotary kilns are too hot for ordinary metals. Oxidation and cracking of feed-pipes are added to the ever-present problem of destructive abrasion . . . *unless* you use pipes that combine heat-resistance *and* wear-resistance in optimum proportions.

B&W cast alloy feed-pipes consistently outlast conventional types by substantial, money-saving margins. Even when they do succumb after years of continuous service, only the exit ends of the pipes need be renewed. A special cost-saving clamp, located to suit service conditions, makes it convenient to replace only the lower part of an assembly.

These long-lasting feed-pipes, together with B&W Tail-Ring Castings, are providing efficient, low-cost operation on many kilns. It will pay you, as it has many others, to investigate their initial and operating economies. The Babcock & Wilcox Co., 85 Liberty Street, New York 6, N. Y.

BABCOCK & WILCOX

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editorial

Important Conventions Are Just Ahead

ONLY a few weeks away are the most important conventions of the year for many of the nonmetallic minerals industries, including agricultural limestone, sand and gravel, and crushed stone, and the related ready-mixed concrete and concrete products industries. All details of their programs are not yet completed, but it is apparent that they will equal or surpass the excellent programs at past meetings. Machinery exhibits are to be held in connection with several of these conventions, and the number of exhibitors is already far ahead of any previous conventions of these groups. Well-balanced programs of entertainment have also been arranged for those attending and for the ladies.

The conventions referred to are those of the National Agricultural Limestone Association, Statler Hotel, Washington, D. C., January 18 and 19, 1950; the National Sand and Gravel Association, and the National Ready Mixed Concrete Association (with a joint machinery exhibit), Stevens Hotel, Chicago, Ill., the week of January 23, 1950; the National Crushed Stone Association, January 30 through February 1, and the Agricultural Limestone Institute, February 1-3, 1950 (with a joint machinery exhibit), both at the Stevens Hotel, Chicago; and the National Concrete Masonry Association, February 6-9, 1950, Sherman Hotel, Chicago. All producers, whether or not they are members, are invited to attend all of these meetings except that of the N.C.M.A. which is limiting attendance to members and invited guests.

Record-breaking attendance seems assured at all of these shows. This can be attributed partly to the fact that the membership of each of these associations has increased sharply during the past year, indicating a growing appreciation of their importance to the industries and to individual producers. For those groups which have machinery exhibits these form an additional inducement, as they are of special interest to superintendents, engineers and other operating men. The central location of most of these meetings, in Chicago, will also help to swell the attendance.

The meeting programs will include, as usual, addresses by leading authorities on timely and important subjects. Speakers will include top association executives and technical directors, government bureau heads, research and business experts, top-flight producers, etc. All types of problems affecting producers in these industries, directly or indirectly, nationally or locally, will be discussed. The best available information will be given on present business conditions and future prospects (both for industry in general and for these industries in particular), governmental action, labor, legal matters, equipment and material supply, car supply, methods of operation, specifications, availability of raw materials, costs, etc. All speakers are prepared to answer questions and to participate in discussions of their subjects.

Open forums, which have become regular and increasingly popular features at these conventions in recent years, are again included. These forums are informal, friendly affairs, led by experts in these fields, at which everyone may, and many do, ask questions and participate in discussions of the problems confronting these industries.

The exhibits this year will be far larger than ever before, and we are informed that they will also be more complete, interesting and educational. At this writing the total of exhibitors has swelled to 73 for the combined N.S.G.A. and N.R.M.C.A. show and 61 for the combined N.C.S.A. and A.L.I. show. Each exhibiting company will have its best engineering and sales talent in attendance.

The complete official programs of the above agricultural limestone, crushed stone, sand and gravel and ready-mixed concrete conventions will be published in the January Annual Forecast and Review Number of PIT AND QUARRY, together with layouts of the exhibits which will be keyed with a list of exhibitors to identify their locations. The program of the concrete masonry convention will be in the CONCRETE MANUFACTURER section of the January issue.

Plan to attend the meeting or meetings in which you are interested and make your hotel reservation now.

More On Canadian Taxes

IN A RECENT address to the Bond Club of New York, Canadian Finance Minister Douglas C. Abbott said that sharp reductions in taxes not only did not put Canada in the red "but every month since the beginning of this fiscal year I have been required to explain why revenues still exceed expenditures by more than had been predicted. Our latest estimates for the fiscal year as a whole indicate a surplus of about 90 million dollars."

According to Mr. Abbott, Canadian taxes were brought down in careful stages over a period of four years and then, when the government this year believed the time had come for a balanced budget "we acted boldly, concentrating our tax reductions on the individual income tax in order to encourage consumer spending." Personal income tax exemptions were restored to prewar levels, "nuisance" taxes on a large number of commodities were eliminated, the tax rate was reduced on the first $10,000 of corporate profits to aid small business, and the "double taxation" on corporate profits and dividend payments was reduced in some cases and eliminated in others.

Mr. Abbott pointed out that when we in the United States were worried by rising unemployment figures, there was no appreciable change in the employment situation in Canada. "I am confident," he said, "that the line we followed did help to keep the economy moving ahead steadily on an even keel."

This method of balancing the budget might also work in the United States.

Walter E. Trauffer

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More than 600 Unax Rotary Kilns have been supplied

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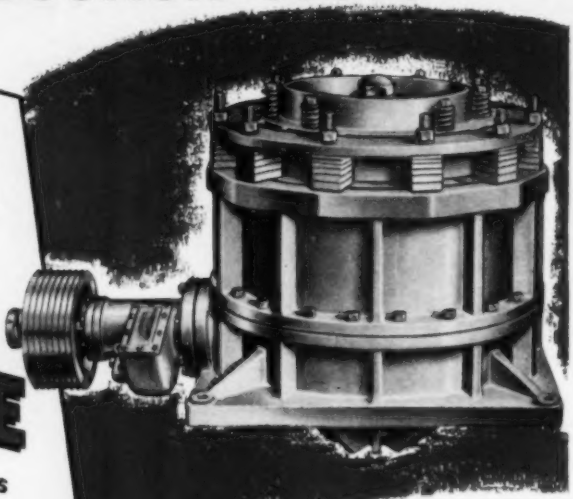

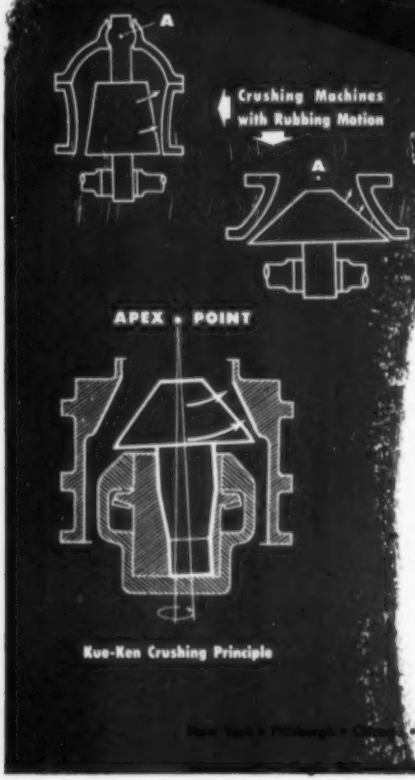

Kue-Ken Crushing Principle

Friction is the archenemy of Crushers. Slipping, rubbing and grinding consume excess power, wear costly crushing faces, lower capacity. But note how the new Kue-Ken crushing head, when gyrating about its apex point, follows arcs that pass *squarely* through the crushing zone. Rock is instantly gripped and crushed, not forced upwards. This is proper engineering —positive, efficient crushing by *pressure only*. Faster, finer crushing at *less cost per ton*.

The new Kue-Ken Gyracone is a rugged, compact, powerful Crusher that needs little headroom, fits easily into your flow sheet. Frame is cast steel. Giant shaft is 5 times stronger than in ordinary cone crushers. Lubrication is abundant and sealed. An automatic switch stops the Kue-Ken if oil pressure is below normal; an overload release guards against tramp iron. The Kue-Ken Gyracone can be choke fed and is quickly adjustable for different product sizes. For mine, quarry, and industrial operations.

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news of the industry

PIT AND QUARRY

Struck Sand-Gravel Plants In Los Angeles Region To Resume Full Production

According to word from the West Coast, the sand and gravel pits in the Los Angeles area were scheduled to resume full production after a three-week strike of the Operating Engineers Union.

Under the terms of a new contract ratified by the workers, employers will grant a 2½-cent hourly wage increase and longer paid vacations for employees having two-year service records. No provision was made, however for paid holidays, one of the points cited in the workers' demands. Fifteen companies were involved in the shutdown. It was estimated that 40,000 workers, directly and indirectly affected, would return to full-time jobs.

Basic Refractories Speeds Magnesite Plant Conversion

Interest runs high in the vicinity of Gabbs, Nev., in the progress of reconditioning a wartime magnesite reduction plant there for Basic Refractories, Inc. The big Basic Magnesium plant was acquired by Basic from the W.A.A.

Meanwhile, the corporation is continuing its brucite mining work nearby. The nonmetallic ore is shipped to Maple Grove, O., for processing. Plans for the future include the launching of a larger mining operation on the firm's magnesite holdings. Such a project envisions the erection of a 380-ft. kiln which would permit processing on the site and distribution throughout the West.

According to local sources, magnesite (carbonate of magnesium) converts into the same calcined magnesium oxide as brucite; thus both ores make the same refractories.

New Aggregates Industry Rises from Coal Dump Fires

Featherlite Corporation, one of the newer industries of Strawn, Tex., has capitalized on what was once a waste product of the local coal mines—the shale which was dumped at the mines.

Three years ago Jack Frost, a geologist, not Nature's autumn artist, founded a corporation which produces a lightweight aggregate from expanded Strawn shale. Other local men associated with Mr. Frost in the firm are J. R. Stuart, vice-president and treasurer, and Alex Mickle, executive vice-president.

Featherlite has been responsible for bringing another new industry to Strawn. The George Rackle & Sons Company of Cleveland, O., has opened a plant in this area in order to be near the source of the lightweight material, which is utilized in its products—concrete roof decks and floor slabs.

Coming Events

January 15-19, 1950 — Chicago. 31st annual meeting, Associated Equipment Distributors, Stevens Hotel.

January 18, 19, 1950—Washington. Fifth annual convention, National Agricultural Limestone Association, Inc., Hotel Statler.

January 23-27, 1950 — Chicago. 34th annual convention and exhibit, National Sand and Gravel Association, Stevens Hotel.

January 23-27, 1950 — Chicago. 20th annual convention and exhibit, National Ready Mixed Concrete Association, Stevens Hotel.

January 30- February 1, 1950 — Chicago. 33rd annual convention, National Crushed Stone Association and Manufacturers Division Exposition, Stevens Hotel.

February 1-3, 1950—Chicago. 5th annual convention, Agricultural Limestone Institute, Stevens Hotel.

February 6-9, 1950—Chicago. 30th annual meeting, National Concrete Masonry Association, Hotel Sherman.

February 12-16, 1950—New York. Annual meeting, American Institute of Mining and Metallurgical Engineers, Statler Hotel.

March 6-9, 1950—Cincinnati. 47th annual meeting, American Road Builders' Association, Netherlands Plaza Hotel.

O. M. Knode President Of U. S. Gypsum Company Succeeding W. L. Keady

Oliver M. Knode, formerly executive committee chairman of the United States Gypsum Company, was recently named president of the concern to fill the vacancy left by the resignation of President William L. Keady. Mr. Knode preceded Mr. Keady as U. S. Gypsum president, moving to a position of "semi-retirement" in 1942. He has been with the company since 1901.

Elected to the office of vice-president was C. H. Shaver, who retains the duties of treasurer. A. W. Irwin, formerly assistant to Mr. Shaver as secretary, was named secretary. H. F. Sadler, vice-president in charge of sales and a director, became a member of the executive committee.

Simultaneously with these appointments came the resignation of Louis Ware from U. S. Gypsum's board of directors. Mr. Ware, who is president of the International Minerals and Chemical Corporation, has been a director since 1947.

N. American Cement Plant At Berkeley to Be Closed

P. W. Andreas, assistant to the chairman of the North American Cement Corporation's board, recently disclosed that the firm's Berkeley plant at Berkeley Station, W. Va., had been closed. Mr. Andreas announced that the facilities had been closed because its operation was unprofitable.

It was indicated that the plant would be dismantled and its equipment sold.

Midwest Pre-Cote Company Entertains 500 Down Under

When installation of the Midwest Pre-Cote Company's new screening and crushing plant had been accomplished near Randolph, Kan., the occasion was marked with a barbecue lunch served to 500 guests in the underground quarry of the company.

Even the cars of the visitors were parked underground in the cavern rooms, all adequately illuminated by floodlights. Guests were producers who had come to inspect the new plant and observe its operation.

September Building Volume Greatest Since 1942—At Wartime Boom Peak

F. W. Dodge Corporation reported spectacular increases in the dollar-volume of building and construction contracts awarded in September in the 37 states east of the Rocky Mountains, to bring the total to $1,093,724,000, the highest reported for a single month since June, 1942, when wartime construction was at its peak.

It was the second time in the Dodge statistical series dating back to pre-boom years in the twenties, that more than $1,000,000,000 in awards were reported for a single month in the 37 Eastern states, the corporation reported.

September's record volume cancelled deficits of earlier months, to bring the cumulative dollar volume for the first three quarters of the year to 1 percent higher than in the corresponding nine months of 1948.

September investments by private owners accounted mainly for the advances, the overall contract total for projects classified as privately owned amounting to $804,970,000 to show a 37 percent jump over August and a 60 percent increase over September of last year. Public-account awards last month amounted to $288,754,000 or 9 percent less than in August and 11 percent more than in September last year.

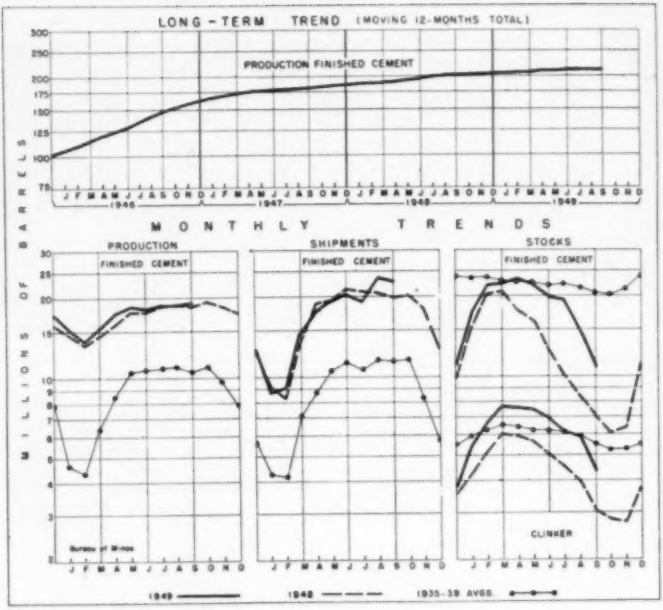
Residential September awards in the 37 states totaled $525,572,000, to reflect a 34 percent gain over August and 88 percent over September of last year. Private residential building accounted for 96 percent of September's volume. Substantial gains were reported for both apartment houses and single-family dwellings.

Nonresidential awards in September totaled $345,023,000, a volume 24 percent higher than in August and 23 percent greater than in September a year ago. September private nonresidential volume showed gains of 40 and 26 percent respectively over August and over September of last year, while public volume was off 5 percent from August and up 17 percent over September of last year. Extraordinary gains were reported for commercial, educational, scientific and religious buildings.

Heavy engineering awards failed to follow the upward trend shown in residential and nonresidential building, the September total of $223,129,000 being off 5 percent from August but up 10 percent over September of last year.

At the end of the third quarter of the year the cumulative total of awards was $7,410,708,000 in the 37 states, as against $7,345,773,000, in the corresponding nine months of last year, a gain this year of 1 percent.

Effective November 1, 1949, the headquarters of the Ohio Sand and Gravel Association and the Ohio Ready Mixed Concrete Association will be located at the Huntington Bank Building, Room 630, Columbus, O.



AUGUST SUMMARY—The portland cement industry produced 18,715,000 barrels of finished cement in August, 1949, as reported to the U. S. Bureau of Mines, and represents a decrease of 1 percent from the output in August, 1948. Mill shipments amounted to 23,633,000 barrels—an increase of 14 percent over August, 1948, figures, while stocks of 14,395,000 barrels on August 31 were 72 percent above the August, 1948, total. Clinker output in August, 1949, amounted to 18,362,000 barrels—a decrease of 1 percent from that of the corresponding month of the preceding year.

PRODUCTION—The output of 18,715,000 barrels of finished cement in August, 1949, came from 146 plants located in 34 states and Puerto Rico. In the same month of 1948, 18,961,000 barrels were produced from 146 plants. Clinker production declined slightly from the August, 1948, figure.

SHIPMENTS—Mill shipments of 23,633,000 barrels increased 14 percent over August, 1948, totals. The demand for cement, as indicated by mill shipments, increased over that of the previous month (July, 1949)—19,320,000 barrels. Shipments were greater in 17 districts and lower in two than those reported in August, 1948.

STOCKS—Stocks of 14,395,000 barrels of finished cement on August 31 were 72 percent above the August, 1948, figure, while clinker stocks, as of the same date, amounted to 5,877,000 barrels—an increase of 50 percent.

SEPTEMBER SUMMARY—The portland cement industry produced 19,187,000 barrels of finished cement in September, 1949, an increase of 3 percent over the output in September, 1948. Mill shipments totaled 22,778,000 barrels—an increase of 14 percent over September, 1948, figures, while stocks of 10,799,000 barrels on September 30 were 53 percent above the September, 1948, total. Clinker output in September, 1949, amounted to 17,998,000 barrels—an increase of less than half a percent, as compared with the corresponding month of the preceding year.

PRODUCTION—The output of 19,187,000 barrels of finished cement in September, 1949, came from 146 plants located in 35 states and Puerto Rico. In the same month of 1948, 18,605,000 barrels were produced from 145 plants. Clinker production increased slightly compared with the September, 1948, figure.

SHIPMENTS—Mill shipments of 22,778,000 barrels increased 14 percent, as compared with September, 1948, totals. The demand for cement, as indicated by mill shipments, declined somewhat compared with the previous month (August, 1949)—23,633,000 barrels. Shipments were greater in 15 districts and lower in 4 than those reported in September, 1948.

STOCKS—Stocks of 10,799,000 barrels of finished cement on September 30 were 53 percent above the September, 1948, figure, while clinker stocks of the same date amounted to 4,436,000 barrels—an increase of 45 percent.

Tennessee Concern to Have $400,000 Aggregate Plant

The Tennessee Lightweight Aggregate Corporation has begun work on a new $400,000 plant near Briceville, Tenn., for the production of lightweight concrete aggregate from coal-mine shale waste. According to plans announced in local papers, shale from waste piles of the Old Shamrock mine near Briceville will be fired in a 70-ft. rotary kiln at a 1200-deg. temperature. Power shovels and trucks will be used in loading the shale and hauling it from the waste dumps to the nearby plant. About 50 men are expected to be employed.

Officials of the corporation are listed as H. P. David, chairman; D. A. Dullworth, president; A. G. Greenup, vice-president; and Ralph Higgins, secretary and treasurer. Main offices of the corporation are to be at Lake City, Tenn.

Soaring Truck Demand Expected to Establish 1,000,000-Mark in '49

Demand for motor trucks, one of the most accurate barometers of general economic trends, is continuing at high levels and is expected to remain brisk during 1950, according to W. C. Schumacher, general manager of the motor truck division of International Harvester Company. He made this statement recently at a sales meeting in Chicago.

Accelerated retail deliveries of motor trucks so far in 1949 compare favorably with the record-smashing sales achieved during the comparable period of 1948 and give every indication that demand will continue to be heavy during 1950, Mr. Schumacher declared.

"It is gratifying to report that sales of trucks should reach the million mark in 1949 and thus again break all pre-war records. This high rate of sales, according to historical precedent, portends a bright outlook for American economic conditions in general."

Reflecting the extent of International Harvester's optimism toward the future, Mr. Schumacher said that the firm recently spent in excess of $30,000,000 for remodeling and expanding motor truck production facilities at the company's plants at Fort Wayne and Indianapolis, and at Springfield, Ohio.

Citing industry statistics, Mr. Schumacher pointed out that there are more than 7,000,000 motor trucks and trailers in the United States — over half the trucks and trailers in the world — which pay $1,032,000,000 a year in special highway use taxes and provide direct employment for over 5,000,000 workers.

Columbia Quarry Co. Buys Ullin Crushed Stone Plant

H. C. Krause, president of the Columbia Quarry Company, St. Louis, Mo., recently announced that his firm had acquired the facilities of the Ullin Crushed Stone Company at Ullin, Ill.

The plant was originally opened about 40 years ago, but was later abandoned. In 1947 Nally, Ballard & Cato, Inc., Mitchell, Ind., reopened it, producing agricultural limestone and crushed stone. Columbia Quarry Company took possession of the plant on September 21.

Production Is Resumed At Devil's Slide Plant Of Ideal Cement Company

Activity at Ideal Cement Company's Devil's Slide plant, was resumed in October after a shutdown of several weeks. Approximately the same 200 men who were laid off on August 21 are on the job at the plant.

The Devil's Slide personnel got the cease production order when the backlog rose to 400,000 barrels. Resumption of work at the plant was due, said Superintendent A. W. Hooton, to increased use of cement in the area. Production is currently 18,000 sacks of cement per day.

• Below: The compact and efficient semi-portable crushed stone and agricultural limestone plant of M. M. Beard, located 8 miles east of Knoxville, Ia. Stone is discharged from the truck at the right to a feeder over the Iowa Manufacturing Company Cedarapids jaw crusher. A belt conveyor feeds the product to the vibrating screen at the left. Oversize drops into the Gruendler hammermill and a return belt feeds back on the main belt conveyor. The jaw crusher and feeder are driven by a "Caterpillar" D13000 diesel engine. Another D13000 and a D8800 power other equipment, including the hammermill. The screen and main conveyor are driven by a small power unit above the screen.

• Right: A closeup of the Gruendler hammermill used for reduction of oversize, with one of the "Caterpillar" diesel engines at the right.

Clemmer Named Director Of U. S. Mines Bureau In Southeast—Region VII

J. Bruce Clemmer, mineral technologist and administrator with the U. S. Bureau of Mines for over 20 years, has been appointed regional director of Region VII of the Bureau, the Southeast, with headquarters at Tuscaloosa, Ala. The appointment became effective on November 15. Region VII includes Tennessee, North and South Carolina, Georgia, Alabama, Mississippi, and Florida.

Chief of the Tuscon, Ariz., branch of the former Metallurgical Division since 1945, Mr. Clemmer becomes the ninth and last regional director to be named under a re-organization of the Bureau of Mines which began on September 1. As regional director, Mr. Clemmer will report directly to director James Boyd in Washington, D. C. He will be in charge of all Bureau activities in his region, including the stations at Tuscaloosa, Ala., Norris, Tenn., and Raleigh, N. C., and the district and subdistrict offices at Birmingham, Ala., and Jellico, Tenn. Mr. Clemmer will be serving his second tour of duty at Tuscaloosa, having been a metallurgist at this station during World War II. Mr. Clemmer was graduated from the South Dakota State School of Mines at Rapid City, S. D., in 1927. He joined the Bureau at its Rolla, Mo., station in 1928, after completing work for his Master of Science degree at the Missouri School of Mines at Rolla.

During his years with the Bureau, Mr. Clemmer has won recognition as an outstanding authority on froth flotation for concentrating and separating both metallic and nonmetallic ores. One of his first major successes with the Bureau was the development of a method for concentrating difficult manganese ores. Another early achievement was developing a method for treating a Vermont talc ore so that a satisfactory talc, a magnesite concentrate, and a nickel concentrate were produced. As a result of his work on graphite, Mr. Clemmer developed a flow sheet for the treatment of Alabama graphitic cores which was adopted in five wartime graphite plants. He also devoted considerable effort to the concentration of fluorspar. One result of this work was the establishment of a fluorspar mill at Cave-in-Rock, Ill. While at Tuscaloosa in 1935-45, Mr. Clemmer developed a satisfactory method of separating fluorspar and barite, and continued this work after going to Tuscon. The successful milling of a barite-bearing fluorspar by a new company in Arizona was one of the results.

Since his appointment as chief of the metallurgical branch work at Tucson, besides presiding over the reorganization of that station, Mr. Clemmer has had charge of Bureau studies of perlite. In March, 1949, the Department of the Interior awarded him a meritorious promotion " in recognition of outstanding contribution to national conservation and security through the advancement of the science of mineral technology as evidenced by his patents and in getting his work done in spite of extreme handicaps."

Word of Mr. Clemmer's appointment failed to reach PIT AND QUARRY headquarters in time to be included in the report on eight other Mines Bureau appointments in the November issue.

Penn-Dixie, N. American Lead in Price Boost Move

Two of the major cement companies in the East, Pennsylvania-Dixie and North American Cement, led a move to boost the price of their products by announcing a 10-cents-per-barrel increase, to take effect on October 1.

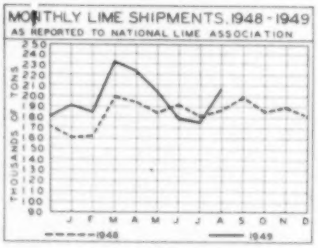
Other producers in the Lehigh Valley, among them Lehigh Portland Cement, Universal-Atlas, Alpha Portland Cement and Lone Star, are expected to follow suit.

Given as the reason for the action of the two firms was "the inadequacy of returns from a barrel of cement at present high price levels." The price boost raised the price, f.o.b. Lehigh valley mills, to $2.40 a barrel.

Diggers Looking for Sand Turn up Gold at San Diego

Near San Diego, Calif., workers dredging the bed of the San Diego River, usually dry, for sand and gravel found gold in their scoop.

City Manager Fred Rhodes, however, stated that only costly excavating equipment could penetrate 15 feet to reach the precious metal in the heavily silted earth. He added that the strike is on city-owned land and that the dredging company had applied for a contract to mine gold. The contract would give the city of San Diego a 10 percent royalty.



According to data collected by the National Lime Association, 50 companies in August, 1949, shipped 206,984 tons of lime (126,803 quicklime; 80,181 hydrate). Reporting companies represent 60.3 percent of the association members' total capacity of record. Based on Pit and Quarry's estimate for the remainder of the industry, the total shipments for the month by all plants were approximately 377,600 tons. Shipments by uses and grades for August, 1949, were:

	Quicklime (tons)	Hydrate (tons)
Agricultural	4,839	10,784
Building	16,662	41,528
Chemical	105,302	27,869
Total	126,803	80,181

Economists Expect Mild Business Downtrend Then Recovery in 1950

Further readjustment will characterize the nation's business between now and the middle of next year, with a moderate rise to follow during the latter part of next year.

This conclusion is drawn from an opinion survey made by F. W. Dodge Corporation among 108 economists in industrial and research organizations and in universities, the findings of which were made public recently.

Some of the economists observed that their answers to the comprehensive questionnaire were conditional in event the current coal and steel strikes were of extended duration. High lights of the Dodge survey follow.

1. Insignificant change is to be expected in physical volume of production between now and the end of next year, with a reasonable expectation of moderate decline between now and mid-year 1950, and a moderate rise in the last half of 1950.

2. Civilian employment will remain approximately stable or decline during the remainder of this year and the first half of next, and remain approximately stable in the last half of next year.

3. A general and moderate downward movement in the wholesale commodity price index is expected between now and the end of next year.

4. A preponderant opinion points to a definite downward movement in the wholesale price of farm products, a downward trend (but not pronounced) in metals and metal products, and a moderate downward trend in the wholesale prices of building materials as a group.

5. A generally progressive but moderate downward cost-of-living index through next year is anticipated.

6. Wages in industry will remain generally stable during the coming year, and the opinion is overwhelming that many industrial workers will receive benefits equivalent to wage increases during the year.

7. Total consumption expenditures will decline next year, perhaps in the range of 3 to 5 percent from this year's level.

8. Two thirds of the respondents expect the number of dwelling units to be built next year to be less than this year's volume.

9. A downtrend in private nonresidential construction next year is anticipated, but the economists believe public building and engineering works next year will exceed this year's dollar volume.

The National Slag Association has announced the release of a United States Bureau of Mines bulletin entitled *Iron Blast Furnace Slag—Production, Processing, Properties and Uses*, a publication designed primarily as a useful reference on the subject of blast furnace slag. The book represents the coordinated efforts of the Bureau and N.S.A.

Gypsum Products Plant Acquired by Kaiser At Redwood City, Calif.

In a move to increase production to meet the growing demands of the West, Henry J. Kaiser has announced the acquisition of the Redwood City, Calif., gypsum products plant formerly operated by the Pacific Portland Cement Company.

The newly acquired plant and that of the Kaiser-affiliated Standard Gypsum Company of California, located at Long Beach, will henceforth be owned and operated by Kaiser Gypsum, a division of Kaiser Industries, Inc.

Mr. Kaiser stated that the Redwood City plant will manufacture a complete line of gypsum products for distribution in northern California, western Nevada, Oregon and Washington. He explained that additional production was necessary because demand for the company's products has increased so greatly in the last few months that existing facilities were inadequate.

According to Mr. Kaiser, an extensive modernization program will be carried on during the coming six months, including new spur track service and deep-water unloading facilities for bulk-ore-carrying ships serving the plant.

Raw gypsum to supply the plant will be shipped from the company's quarry on San Marcos Island, off the coast of Baja, California. This deposit, one of the only two on the North American continent situated on tidewater, is one of the world's largest high-grade gypsum sources.

Crushed and Broken Stone In 1948 Up in Volume, Price

The output of crushed and broken stone in the United States in 1948, as reported by producers to the U. S. Bureau of Mines, totaled 223,863,780 short tons, valued at $280,960,452, an increase of 9 percent in quantity and 13 percent in value as compared with 1947. Included in this total is stone sold or used for concrete aggregates, railroad ballast, metallurgical use (flux), agricultural limestone, refractory stone, riprap, stone sand, alkali works, calcium carbide works, sugar and glass factories, paper mills, and in various other uses. Stone used in the manufacture of lime, cement, and asphaltic stone, and slate used for granules and flour are not included in this total.

Crushed and broken stone used for concrete aggregates and railroad ballast (62 percent of the total output in 1948) increased 13 percent in quantity and 19 percent in value, as compared with 1947 totals. Eighty-nine percent of the 121,542,170 short tons used for concrete aggregate was produced by commercial operators and 11 percent by government agencies.

Metallurgical uses, which took 16 percent of the total crushed and broken stone in 1948, showed an increase of 7 percent in quantity and 19 percent in value over 1947 totals. Limestone for agricultural purposes (9 percent of total tonnage of crushed stone in 1948) decreased 7 percent quantitywise and 9 percent in value, as compared with the previous year. Other uses consumed 4 percent of the total, or 9,465,980 short tons, valued at $22,421,259.

In 1948, limestone, including dolomite, constituted 74 percent of all crushed and broken stone sold (excluding that used for making cement and lime) and was quarried in all but four states.

New Kiln Hikes Daily Output To 100 Tons at Menke Plant

More efficient methods of processing are now in use at the Menke Stone and Lime Company's plant at Quincy, Ill., since the installation of a larger and more modern kiln. Production at the 86-year-old plant is expected to be 100 tons per day.

Two small kilns installed 45 years ago were shut down when the new Azbe kiln was put in operation. The newly completed kiln, 14 ft. in diameter and 61 ft. high, is fired with natural gas to temperatures ranging from 2100 to 2500 deg. F. E. H. Siebrasse is plant manager and George Holzgrafe is kiln superintendent.

Calaveras Cement Company Presents New Plastic Cement

A blend of top quality ingredients, one of them an air-entraining agent, is featured in the formula for a new plastic cement introduced to the northern California market by Calaveras Cement Company. The new product is manufactured exclusively for the plastering trade. It will be known as Calaveras Plastic Cement.

Company spokesmen announced that the product surpasses Federal Government and A.S.T.M. strength specifications, and is particularly resistant to shrinkage cracks.

British Cement Companies To Fight Nationalization By Segregation Plan

British cement makers, it appears, are not giving up the fight against nationalization of the cement industry without strenuous efforts. Roundell C. Palmer, minister of economic warfare in the Churchill cabinet, who is presently chairman of the Cement Makers Federation, has served notice to the socialists that his group will fight to the last against nationalization. He declared that the cement companies plan to segregate their foreign assets in America, Egypt, Mexico, Canada, India, South Africa and Australia, to prevent seizure by the government.

Spokesman for all nine groups of firms comprising the British cement industry, Mr. Palmer stated that the estimated holdings abroad of these companies amount to less than 25 percent of their total assets, but he did not give specific figures. Although he admitted that segregation would not be beneficial to the nation, since the new companies would compete in foreign markets against the British government, Mr. Palmer defended the plan as the only way in which the owners could protect their interests.

Last year Britain exported 1,628,200 tons of cement. Said Mr. Palmer: "The whole of our export trade will vanish overnight, to the delight of our competitors, if the industry is nationalized".

Vickers-Armstrongs Ltd., London, has been awarded a contract for the government of the United Provinces, India, for a two-kiln plant with a capacity of 700 tons per day. The rotary kilns of this plant will also be fitted wih Vickers-Armstrongs desiccators.

Portland cement was first manufactured in the United States at Coplay, Pa., in 1872, just 48 years after the invention of this type of cement in England.

• The sales staff of the Calaveras Cement Company, San Francisco, Calif., was recently honored at a meeting during which the company introduced its new plastic cement in the northern California area. Left to right, front row: Mel London, sales manager, James Casey, George Elliott, Clarence Kent, A. J. Hillam; rear row: W. M. Hallenan Jr., Dale Wadlington, Al Maier, A. L. Sundell, W. G. Jeffrey.

Final Annual Lime Figures Top Previous Records—Total 7,263,976 Tons

Production of open-market lime increased to a record total of 7,263,976 tons in 1948, according to figures submitted by producers to the U. S. Bureau of Mines. This output was 7 percent above the previous high of 6,778,979 tons set in 1947. Production of lime for each of the major uses except agricultural advanced over the 1947 tonnages. Quicklime comprised 75 percent of the total sales and hydrated 25 percent. The output of quicklime increased somewhat more percentagewise than did hydrated—8 and 4 percent, respectively. Costs continued to rise and the average value per short ton for quicklime increased from $9.04 in 1947 to $9.96 in 1948 and for hydrated from $10.50 to $11.50. There was a small increase in the total number of active open-market lime plants in 1948—181 as compared with 179 in 1947.

Open-market lime was produced in 32 states and two territories in 1948. Ohio was again the principal producing state, followed by Pennsylvania and Missouri in that order. These three contributed about 56 percent of the nation's output. Production exceeded apparent consumption in 14 of the 32 lime-producing states in 1948. The excess of out-of-state over into-state movements was large only in Missouri, Ohio, Tennessee, Virginia, and West Virginia.

Lime, once considered primarily a building material, is still used as such in substantial quantity, but now finds its largest markets in the chemical and industrial field. The sales of lime to the chemical and other processing industries continued to increase in 1948. The boom in building was reflected in a 13-percent increase in demand for building lime. Dead-burned dolomite, used as a refractory, increased 11 percent. Agricultural lime, decreased 5 percent, which compares with a 12-percent decline in 1947. The total effective lime content of all agricultural liming materials sold in 1948 decreased 7 percent from 1947. Other important markets which expanded during the year are calcium carbide and cyanamide, paper mills, sewage and tradewastes treatment, and water purification.

Hydrated lime in 1948 comprised 25 percent of the total lime output, which compares with 26 percent in 1947 and 20 percent in 1944. Hydrated lime output was reported by 116 plants located in 32 states and two territories.

Asphalt Sales Increase 5 Percent Over 1947 in 1948

Domestic demand for petroleum asphalt was 6 percent higher in 1948, than in 1947, but export demand was 51 percent lower, so that total demand, domestic and foreign, increased only 2 percent in 1948 over 1947, according to the U. S. Bureau of Mines.

To meet the greater demand, petroleum refineries in the United States enlarged their output 5 percent from 1947 to 1948. But as 37 percent more asphalt was imported in 1948 than in 1947, stocks on December 31, 1948, were 50 percent higher than at the end of 1947. Refinery sales to domestic consumers increased 5 percent in 1948 over 1947.

Historic Shaft Kilns Closed At Warner's Plant No. 20

Last summer operation of the old battery of six Warner Company shaft kilns at Bellefonte, Pa., known locally as Plant 20, ceased permanently. These kilns had been in operation almost continuously for 45 years, and their closing marks the end of an era in which shaft kilns in the Bellefonte area have been replaced by the more modern method of burning lime in rotary kilns.

Lime burning became one of the industries of Centre County in 1863, and by 1900 there were 50 shaft kilns in this area. Thirty years later, however, all of these had been closed with the exception of those at Plant 20, as rotary kiln operation was substituted.

• Warner Company's Plant 20 at Bellefonte, Pa., closed after 45 years in operation.

Vibrations of Big Booms Photographed by Device To Test Safety Factor

Adding a specially designed recording accelerometer—a small, portable instrument—to the wartime walkie-talkie has resulted in the latest in blasting safety

• Richard E. Johnson, recording accelerometer technician, American Mutual Liability Co., demonstrates the control panel of the instrument.

equipment used by American Mutual Liability Insurance Company engineers.

Set on the ground, in the vicinity of structures to be protected, the accelerometer measures minute, vertical, horizontal and transverse earth tremors resulting from the blast. The tremors, magnified 400 times, are recorded photographically by a pencil of light on motion picture film. They indicate the factor of safety present in the control of blasting.

On any specific job, through data obtained in a series of preliminary shots, a schedule of safe maximum charges is worked out. The amount of explosive set off at any one instant is then limited to the calculated safe amount. By means of "delays," a series of such small shots are set off at intervals, and are used to comprise a round. Periodic checks by engineers determine the continued safety of the blasting as the project progresses.

Where the accelerometer test point is distant from the blaster, as in tunnel work, a "Handie-Talkie" radio is used for communication. This enables the accelerometer technician to synchronize his operation of the equipment with the actual firing of the round.

A company engineer chants a fifteen second count over the air. At "15," the blaster closes his switch. Five seconds before the switch is thrown, the accelerometer operator starts his film to photograph the delicate tracery of vibration which momentarily takes place.

Where a hill or other obstruction blocks the unbending, 2-way radio sound waves, a field telephone line is run from blasting switch to a relay station, affording direct radio communication.

The use of this type of recording accelerometer has been worked out over a period of years by Frank J. Crandell, assistant vice-president and Liberty Mutual Insurance Company engineer. The first such instrument was built by Dr. Max Knobel, consulting physicist; it is the property of that company. The American Mutual machine was completed by Dr. Knobel in 1948.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

ASSOCIATION activities predominated in the December, 1919, issue of PIT AND QUARRY. Featured was the meeting of the National Agricultural Limestone Association held at Columbus, O., on November 18. This association, which got its start in Ohio, had attracted members from states over a wide area and at the time of this meeting had begun to pay its own way. Plans were laid to attract more members and to increase efforts to advance the industry's interests. New officers were elected and A. P. Sandles was re-elected executive secretary.

Final preparations were being made for the convention of the National Crushed Stone Association, to be held February 10-12, 1920, at Louisville, Ky. An attractive program with many good speakers was promised. An added feature was that the American Road Builders Association would hold its convention in Louisville at the same time.

The American Sand Association, meeting in Cleveland, O., on November 12, gave particular attention to the question of premiums charged by the industrial commission under the Ohio Workmen's Compensation Act. It was felt that the rates charged were excessive, and steps were taken to determine what fair rates would be. There was also much discussion of the poor condition of freight cars and the cost to the producer of cleaning them.

A meeting of Western lime manufacturers was held in St. Louis, Mo., in November for the purpose of planning development work of the association. Directors were also elected for Districts 7 and 12. Charles Warner, president of the National Lime Association, attended the meeting.

The executive committee of the National Association of Sand and Gravel Producers met in Chicago November 25 to make preliminary arrangements for the 1920 convention. It was decided to hold the convention in Chicago February 11 and 12, the same week that the National Builders Supply Association was meeting there.

The Ohio Macadam Association announced that its annual meeting would be held in Columbus January 13 and 14.

The Nebraska Mineral Aggregate Association met in Omaha in November, at which time its objectives were outlined by C. E. Walsh, secretary. Cooperation among its members and the coordination of their efforts with those of other state and national associations were pointed out to be necessary if these industries were to assume their rightful position.

In this issue were reprinted some of the answers to a PIT AND QUARRY questionnaire of producers on the advisability of operating plants through the winter. A surprisingly large number of producers of crushed stone and even sand and gravel in the northern states said that they work in winter whenever the weather permits.

Coal seems to have been a serious problem 30 years ago, as it is now. An article in that issue deplored the fact that coal operators, miners and the government were unable to come to an agreement, while other industries gradually came to a standstill.

The feature plant article in the December, 1919, issue, by the late Frank M. Welch, described the new sand and gravel operation of the Farco Construction Co. at Fernald, Ohio. A Sauerman dragline excavator was used, and jaw and disc crushers in the plant reduced oversize. Revolving screens and sand settling tanks constituted the remaining equipment in this low-cost plant. Featured also was the compartmented ground storage with its tunnel reclaiming conveyor.

In the Power Plant Section of that issue the feature article described the electrification of the new plant of the Southwestern Portland Cement Company at Victorville, Calif.

Stone Wall of 2000 Samples Tests Weathering Effects

An experimental masonry wall faced with over 2000 specimens of stone from 47 states and 16 foreign countries has recently been erected at the National Bureau of Standards headquarters in Washington, D. C. It will be used to study all phases of the weathering process on numerous varieties of stone as an aid in developing more reliable laboratory methods for predicting durability. The wall is a cooperative project initiated by the Bureau and the American Society for Testing Materials.

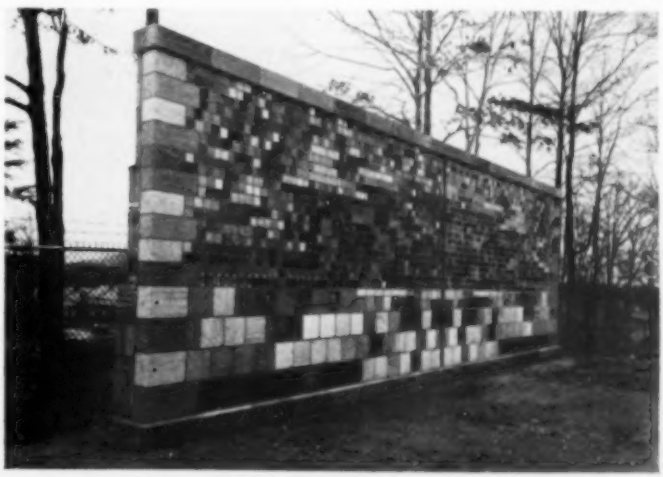
Most types of stone maintain a satisfactory appearance for long periods of time, but a few fade in color and others are affected by discolorations. Small samples of a number of the stones have therefore been stored for future comparisons, and color photographs have been made of the wall.

Modern construction methods have apparently added to the discoloration problem. Because there is a widespread belief that discolorations come from the setting mortar, two widely different types of mortar were selected. In the right half of the wall, a high-calcium lime mortar was used; the other half was set with portland-cement mortar.

In other instances, different types of stone that have been used together in the same structure for color effects have shown more rapid weathering than when used alone. This has been observed especially with combinations of sandstone, limestone, and dolomitic stones.

Two types of waterproofings have been employed experimentally. They are "grade waterproofings," which consist of impervious membranes between the foundation and the first course of stone to prevent the rise of ground water; and "back waterproofing," which is a coating on the back of the stone to prevent penetration of water from other masonry materials.

Although natural stone is generally conceded to be more durable than other types of masonry, it is evident that some varieties are not entirely satisfactory. Data derived from a systematic study of the causes of deterioration on many varieties will be helpful in developing more dependable laboratory methods and specifications.



• The "patchwork" testing wall erected at the Bureau of Standards headquarters.

WASHINGTON NEWS LETTER

THE MOST significant thing that has happened in Washington recently is that the Congress has gone home. Remarkably, the tension all over town has eased. It is hard to find government officials in their offices. Many are taking the vacations, postponed from July and August until after the adjournment of the Congress.

The Record of Congress

With remarkable deftness the President has managed to change his whole position about the accomplishments of this Congress. Just a few short months ago, he was threatening a barnstorming trip around the country in order to get some action on his legislative program. When the Congress adjourned, leaving most of his legislative program unenacted, he congratulated it on its record of achievement.

The official line now is that the Congress did just as much as it could in one session, that it enacted all of the President's foreign policy program, and that when the Congress reconvenes, it will enact his domestic program. There is, of course, a large element of wishful thinking in all this.

The fact of the matter is that in the session just finished the Congress enacted those laws for which there were enough votes. Often it required the help of Republican votes to get them passed. When the Congress reconvenes early next year, there will be no significant change in its composition. There is little reason to believe, therefore, that measures which could not pass this session will pass in the next. There are some who believe that with an election coming up next November some congressmen will change their minds. But it would be assuming a great deal to expect that there will be enough changes to reverse the trend.

What record did the Congress make? It re-enacted the bi-partisan foreign program. With Republican help, the Marshall Plan appropriation passed. A European military alliance and the funds to implement it also passed—with Republican help. Large amounts of money were appropriated for the armed forces, particularly for the air force, with little opposition. A housing bill passed; but it must be remembered that

By S. HERBERT UNTERBERGER

Senator Taft had long been associated with the move toward more federal aid to housing. Farm price supports passed; but then, no congressman ever dares oppose them. Many of these measures might have passed even without the sweeping Democratic victory a year ago.

The President did get a few measures which he specifically favored. The pay of government officials was raised, but not as much as the President wished. The President was given further power to extend reciprocal trade privileges. The minimum wage was raised from 40 to 75 cents an hour. But that law was not extended to cover additional workers. Rather, some workers formerly covered were exempted.

Even more revealing are the things that Congress did *not* do. It did not repeal the Taft-Hartley Act. It didn't even amend it. The votes just were not there to change that law substantially. It did not expand Social Security, unemployment insurance, health insurance, or old age benefits. It did not pass federal aid to education. The Brannan plan for farm aid did not get very far. A Federal Fair Employment Practices Act got nowhere at all, nor did universal military training, the St. Lawrence Waterway and other river development programs.

Most of these measures were popular neither with Republicans nor with Southern Democrats; so they didn't pass. They will, undoubtedly, face tough sledding in the next session. Curiously enough, the one part of the program which has the best chance of passing now is greater old-age benefits. There are two reasons for this. The needs of old people always receive some attention in an election year. The other reason will probably be far more important. Various CIO unions have won pensions from their employees under which the amount received from Social Security is deducted. In most cases the employer is required to pay the whole cost. If the amount received from Social Security goes up, in most cases the amount the employer has to pay goes down. These employers now have a real money-saving incentive to see to it that Social Security payments rise. Many of them can be expected to back measures increasing Social Security benefits.

Consumer Spending

In the last analysis, how much business is done depends on whether consumers are ready, able and willing to spend. Recognizing this, the Federal Reserve Board makes regular studies of the financial position of consumers and their buying plans. The results of its July study have just been published. They are of special interest because they continue to reflect a cautious optimism. The findings may be summarized as follows:

1. More than 50 percent of all spending units (generally families) expected their incomes to be larger in 1949 than in 1948.
2. In July a larger proportion of consumers felt their financial position had deteriorated more than at the beginning of 1949.
3. Seven out of 20 units reported a decline in income.
4. More bought automobiles in the first half of 1949 than in the first half of 1948.
5. In July as many expected to buy automobiles and other durable goods in the coming year as had planned to do so at the beginning of the year.
6. In general consumers believed that the economic situation, while still good at midyear, was not quite as good as it was at the beginning of the year.
7. The proportion of optimists about the economic outlook continued to exceed the pessimists.
8. Most consumers felt that if they lost their present jobs, they could not get equally good ones.
9. Most consumers expected further small price declines.

Corporate Profits Down

The Commerce Department has just released its report on the profits of corporations in the second quarter of 1949. This is the third calendar quarter in succession in which they have declined.

On a before-taxes basis, corporate profits in the second quarter of 1949 amounted to 6.6 billion dollars. This is 12 percent below the 7.5 billion dollars earned in the first quarter of the year and about one-fourth below the second quarter of 1948.

Profits in the third quarter of

(*Continued on page* 63)

• Standing outside the office building at the Feldspar Flotation Corporation's plant at Spruce Pine, N. C., are L. L. McMurray, engineer, and C. P. Rogers, Jr., plant manager.

Feldspar Flotation—

North Carolina Concerns Develop New Froth Flotation Process

By Edward J. Brunenkant

another ON THE SPOT feature

UNTIL quite recently feldspar was produced primarily by mining comparatively limited lenses and irregular streaks of graphic-granite. In most of these mining operations considerable hand cobbing was necessary to free the feldspar crystals from the associated quartz and other impurities. With feldspar-rich pegmatites nearly exhausted in late years, labor costs increased and competition keen from other raw materials which may be substituted in some of the manufacturing processes for which feldspar is specially suited, this method of production became inadequate.

This combination of conditions induced the development and adaptation of a froth flotation process to the beneficiation of feldspar from large dikes of alaskite-granite. In 1947 the Feldspar Flotation Corporation of Spruce Pine, N. C., was organized to enter into this new production method backed by experience in the feldspar business through its two associated companies, the Feldspar Milling Company and the North Carolina Feldspar Corporation. This flotation process was developed under the joint auspices of the companies concerned, the Tennessee Valley Authority, and the North Carolina State College Minerals Research Laboratories at Asheville.

Construction of the new flotation plant was started in 1947 and completed in February, 1949. Sufficient ore reserves adjacent to the plant have been proven which will permit capacity operation for at least 30 years. Additional alaskite-granite deposits are available within easy trucking distance.

The ore deposits are remarkably uniform in composition and texture throughout the Spruce Pine district, varying only slightly due to weathering. A typical analysis and mineral composition is given below:

SiO_2	74.30 percent
Al_2O_3	15.88 percent
Na_2O	4.90 percent
K_2O	3.08 percent
CaO	0.83 percent
Fe_2O_3	0.45 percent
IGN	0.39 percent
M_gO	trace percent
	99.73 percent
Mixed Feldspars	58 percent
Quartz	32 percent
Mica	8 percent
Garnet and misc.	2 percent
	100 percent

• Left: Plant feed stone is distributed over a tunnel reclaiming system with this overhead automatic traveling tripper.

• Below: A general view of the new flotation plant at Spruce Pine, N. C.

Liberation of the minerals is complete at minus 20-mesh.

Quarrying and Crushing—One of the great advantages of a froth flotation system of refining feldspar is that it permits open-pit mining with all of its attendant economies over hand selection of the ore. Translated into cost experience, open-pit recovery effects nearly a 70 percent savings in the mining step of production.

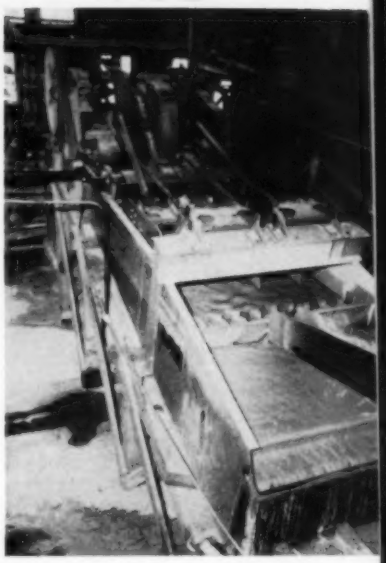
At this quarry the rock is drilled initially with wagon drills working in 20- by 30-ft. benches. Normally shots will bring down between 3000 to 7000 tons of stone. Because the deposit is heavily fissured, the stone breaks out in large pieces which have to be reduced with secondary blasts. For this drilling Ingersoll Rand Jackhamers equipped with 4-point carbide-tipped bits are employed. Even in this abrasive formation, these bits are giving up to 250 ft. of service before resharpening is necessary.

The pit-run material is loaded into 1½-ton trucks with a Northwest shovel and hauled ½ mile to the plant. Here it is reduced to minus 1 in. in an Austin Western 20- by 36-in. jaw crusher and a 3-ft. Symons cone. This product is lifted to a trestle conveyor equipped with an automatic traveling tripper which distributes the material onto a 2000-ton storage pile running the entire length of the conveyor. Mill feed rock is reclaimed from the storage pile with a conveyor belt operating in a concrete tunnel and elevated to a 100-ton surge bin. This system of stockpiling and reclaiming, in addition to insuring adequate mill feed, in the event of a tieup of ore supply, also provides a convenient method of blending the stone. All conveyors were supplied by the Continental Gin Company.

Milling—The plant was designed to produce feldspar at the rate of 10 t.p.h. This means a plant feed rate of 20 t.p.h. Since all milling operations are closely integrated, it is vitally important that the rate of feed to the plant be constant. It is regulated through a Reeves variable speed drive attached to the belt conveyor charging a Denver 5- by 10-ft. rod mill. As an added precautionary measure, a signal device, actuated whenever the load on the charging belt falls below a predetermined level, sounds a bell warning. (See illustration).

The rod mill discharge tumbles into a Tyler trommel screen, where foreign elements such as tramp iron, etc., are moved. The pulp (approximately 100 g.p.m. of water is added at the rod mill) flows by gravity to a Denver 14-ft.-diameter hydroseparator operating in conjunction with a 21-ft. rake classifier of the same make for slime removal. In this operation minus 200-mesh is taken off and wasted.

Sand falls off the end of the rake into two conditioners; here water and reagents are added for the mica float, which is separated in a Denver single-cell, 6-section flotation machine. Tailings of the mica circuit flow through two rake classifiers for removal of the mica reagent and thickening. Again the sand is conditioned and the pulp pumped into the second flotation tank. Here the garnet is floated. In the end section of this 6-section flotation machine, more reagents are added and the pulp is passed into the third flotation tank for separation of the feldspar.

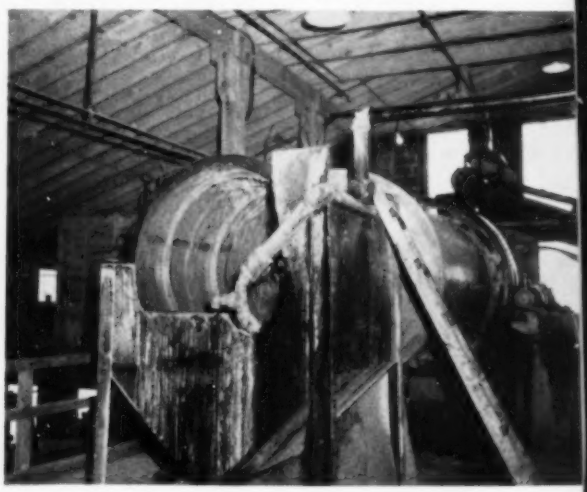


• One of several rake classifiers used in the Feldspar Flotation Corporation plant.

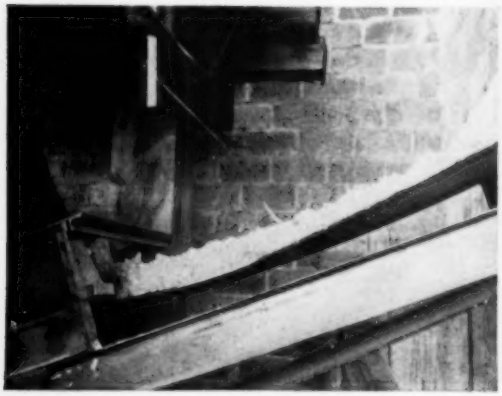
The spar concentrate is pumped into an Oliver continuous vacuum filter, where nearly 90 percent of the moisture is abstracted. About 5 in. of negative pressure are needed for efficient operation of this filter.

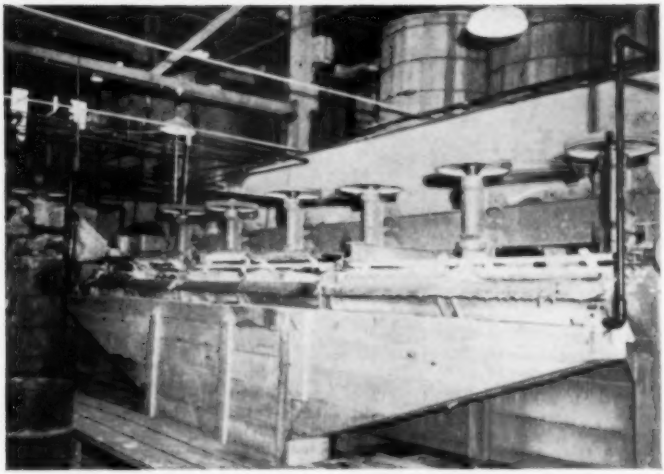
The semi-dried product is collected on a belt conveyor and fed into a 5- by 40-ft. rotary dryer.

• The first step in the feldspar flotation process is grinding in this rod mill. The reduced stone is discharged into a trommel screen for removal of foreign material.



• Whenever the load on this belt falls below a predetermined level, the arm swings back, actuating a bell alarm which signifies that the rate of feed to the plant has slowed down.

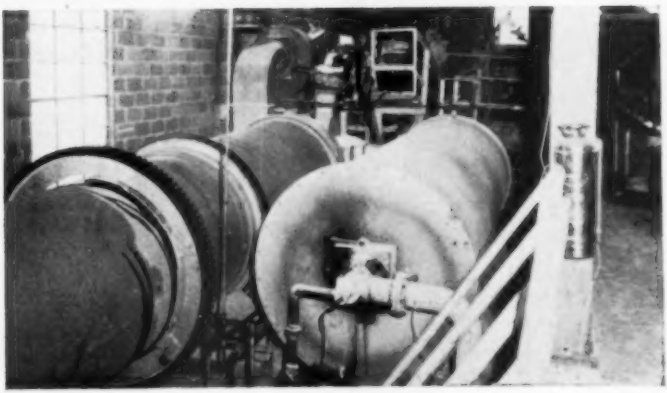




• A flotation cell. Feldspar recovery is approximately 10 t.p.h. from a plant feed of 20 t.p.h. It is a simple matter, however, to keep the Al_2O_3 content of the floated spar at 19 percent.

• Left: Approximately 90 percent of the excess moisture is extracted in this continuous vacuum filter.

• Below: Final drying is handled in this 5- by 40-ft. dryer. Notice the separate combustion chamber.



Rather unusual in installations of this type, this dryer has a separate combustion chamber erected alongside and parallel to the dryer shell. Hot air from the combustion chamber is passed through a tube running down the center of the dryer and returns in the space between the outside of the center tube and the inside of the dryer shell. For all practical purposes the dryer discharge (leaves at nearly 300 deg. F.) is moisture-free.

This product is known to the trade as granular spar. Substantially it is a 20-mesh material with 93 percent retained upon a 200-mesh screen. Finer grain sizes, 100-mesh and 200-mesh, can be ground from the 20-mesh product. These sizes find a ready market among manufacturers of porcelain enamel and pottery (both vitreous and semi-vitreous) due to the more uniform quality and purity. Feldspar Flotation ships its product in bulk, either in box or hopper cars, and in valve-type paper bags. The 20-mesh spar is used by the glass trade in the manufacture of such items as mason jars, beer bottles, structural glass block, table ware, window glass, plate glass, light bulbs, and a number of other glass products.

A sample analysis of the product produced by the Feldspar Flotation Corp. shows:

SiO_2	68.2	percent
Al_2O_3	19.4	percent
Na_2O	6.5	percent
K_2O	4.3	percent
CaO	1.2	percent
Fe_2O_3	0.08	percent

According to C. P. Rogers Jr., plant manager, and L. L. McMurray, engineer, to whom thanks and acknowledgement is due for the information contained in this report, froth flotation offers another advantage not yet mentioned. Although it is theoretically possible to produce a feldspar with a 19 percent Al_2O_3 content by the dry recovery method, it is economically limited to about 17 percent. On the other hand, it is a simple matter by flotation, even with low grade ores, to keep the Al_2O_3 content at 19 percent.

William C. Carter, operator of the Massey Rock and Sand Company near Palm Springs, Calif., has announced that he will take over the Desert Rock Company and operate it from the present location. Products will be ready-mixed concrete, rock, sand, sand wash and all types of road material.

Huge Attendance Attracted By 37th Annual Safety Congress

BY

HAROLD R. DRIMILLA

another ON THE SPOT report

RANK and file, under the banner of *Safety First,* a throng in excess of 12,000 surged into downtown Chicago during the week of October 24-28. The 37th National Safety Congress and Exposition was the occasion, and in every way it measured up to expectations as ranking high among the world's largest conventions. Activities were spread out over six of the city's leading hotels, namely the Stevens, Sherman, Palmer House, Morrison, Blackstone and Congress. In all, there were 561 program participants at 261 separate sessions devoted to all phases of safety. At the annual banquet, held the evening of October 26 in the Stevens Hotel Grand Ballroom, Eddie Cantor, famed comedian, made a special human-interest appeal in the cause of saving lives. Mayor Kennelly of Chicago gave the welcoming address.

Row upon row of booths exhibited the latest developments in industrial safety at Exhibition Hall at the Stevens, while exhibits in the interest of general public safety were displayed in equally ambitious fashion on the mezzanine floor of the Sherman Hotel. The highly gratifying attendance at both fully rewarded the efforts of the participating exhibitors.

• Left: Lee P. Warner Jr., general chairman-elect, presents to his predecessor, F. J. Buffington, a plaque in recognition of his outstanding service to the Cement and Quarry Section during his term in office.

• Below: H. G. Collins, visual aid committee chairman; M. C. M. Pollard, vice-chairman; L. P. Warner Jr., general chairman; O. L. Staggs, news letter editor; Ivan LeGore, program committee chairman; and F. T. Moyer, statistics committee chairman.

In the election of general officers, Ned H. Dearborn was chosen as president of the Council for the sixth consecutive year. He will continue as administrative head of the Council's staff in addition to his presidential duties. James Tanham, vice-president for industrial and public relations, Texas Co., was re-elected chairman of the board of directors. Guy L. Noble was retained as vice-chairman. Among those elected to departmental vice-presidential posts were George A. Jacoby (director of personnel services, General Motors), industry; Boyd Lewis (executive editor, *N.E.A.-Acme*), public relations; Thomas H. MacDonald (commissioner of public roads, Bureau of Public Roads, Dept. of Commerce), traffic and transportation; O. Gressens (vice-president and comptroller, Commonwealth Edison Co.), finance; and E. W. Kempton (assistant vice-president, U. S. Steel Corp.), membership.

Reporting at the annual Council meeting, President Ned H. Dearborn emphasized that accidents take more work-years from the lives of Americans than any disease and that the nation is spending $782,000 hourly for the "privilege" of being apathetic about this problem. The pivot of his discussion was the promulgation of safety instruction as a six-lesson plan, *viz:* be careful; be practical; be positive; be sensible; be cooperative; and be a good American.

Cement and Quarry Section

The Cement and Quarry sessions, held on the afternoons of October 26 and 27 at the Stevens Hotel, were particularly well attended. Lea P. Warner Jr. (Warner Co., Philadelphia) succeeded F. J. Buffington as general chairman of the section. M. C. M. Pollard (National Gypsum Co., Buffalo) was chosen vice-chairman. Others elected to office were: R. S. Boynton (N.L.A.), secretary; T. W. Jones (New Haven Trap Rock Co.), membership committee chairman; Ivan LeGore (Portland Cement Association), program committee chairman; Forrest T. Moyer

(U. S. Bureau of Mines), statistics committee chairman; O. L. Staggs (Lone Star Cement Corp.), news letter editor; H. G. Collins (Lehigh Portland Cement Co.), visual aid committee chairman; and L. D. Cowling (Louisville Cement Co.), engineering committee chairman.

Following the opening remarks by the retiring general chairman, F. J. Buffington, on Wednesday afternoon, Harris V. Fegely (superintendent and works manager, Monarch Cement Co., Humboldt, Kan.), gave an illustrated talk on *Mechanical Handling for Safer Work*. Using film slides as he spoke, Mr. Fegely pointed out that the use of mechanical equipment, such as shovels and lift trucks, for handling material, repair parts, supplies, etc., is an important step toward lowering production costs, as well as promoting employee safety. In his opinion, the use of pallets, wherever practicable, substantially reduces manual handling and offers the advantage of high vertical stockpiling to offset the bulk involved. In spite of all mechanical advancements, he said, many accidents continue to occur. He stressed the need for advance safety planning, including serious study of minor hazards, and adequate safety instruction in repair, maintenance and handling of repair parts and heavy tools. The pictures were taken at the Monarch Cement Company's Humboldt plant.

Second and last speaker of the day was Nathaniel Cantor, chairman, department of sociology, University of Buffalo. His paper covered *Human Relations in Industrial Safety*. A happy, contented worker is a safe worker, he said, and he added that sometimes a little psychology goes a long way in improving accident records. He admitted that industrial accidents are often caused by faulty equipment and hazardous surroundings, but stated further that the attitudes of the worker are in many cases at fault. He recommended that industrial management make a special effort to understand the problems and sentiments of individual employees in the promotion of safety protection from accidents caused by personal hazards.

First of three papers delivered on Thursday afternoon was that by Forrest T. Moyer, chief, Accident Analysis Division, U. S. Bureau of Mines. Under the title of *Do We Learn to Operate Safely from the Experience of Others?* he pointed out that fatalities during 1948 equalled the average for the past ten years, although there was a 9 percent reduction in injuries and the frequency rate was lowered 12½ percent, the lowest since 1930. This improvement, he said, gave no reason to assume that the accident problem is under control, and he emphasised the importance of safety instructions for new employees. His figures showed that 20 percent of the accidents involved employees of less than 6 months' service, 12 percent those of less than one year and 16 percent those who had been employed between 1 and 2 years. Among the chief causes listed were: falling objects; falls by individuals; improper handling of hand tools; strains due to lifting; and riding haulage vehicles.

● Harris V. Fegely, superintendent and works manager, Monarch Cement Co.

Medical Service for Small Plants was the topic discussed by Dr. E. W. Brown, executive officer, committee on scientific development, Council on Industrial Health, American Medical Association. Defining a small plant as one with a payroll of less than 500, he estimated that operations of this size employed a total of 15,000,000, or 62 percent of the nation's workers. The problem of maintaining adequate medical facilities in small plants he recognized as a difficult one. He advised top management to take special cognizance of the advantages of good health and high morale among employees. He said the practice of sending employees to a doctor at a downtown office was inadequate and recommended the participation in group health programs, periodic examinations for workers, safety committees, and trained supervision including the services of an industrial nurse.

How to Get Protective Equipment Worn was presented by H. G. Collins, manager, safety and welfare, Lehigh Portland Cement Co., as the final topic on the agenda. Speaking mainly of safety shoes, goggles and hard hats, Mr. Collins pointed out that the wearing of all types of protective apparel is one of the most effective methods of reducing injuries. Persuading plant employees to wear protective clothing is chiefly a matter of selling them on its value, he said, and he stressed continual education through every available means, including bulletins, general instruction and personal contact. He also urged that executives set the proper example by wearing protective apparel in the plant.

An interesting 17-page pamphlet,

(*Continued on page 63*)

Number of injuries in quarries and nonmetal mines in the United States, 1939-48, by type of material*

Year	Cement		Limestone		Lime		Marble		Granite	
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
1939	12	457	14	1,743	7	1,034		429	8	607
1940	15	521	21	1,953	12	1,056	3	242	12	543
1941	14	705	30	2,622	17	1,551		240	8	719
1942	46	787	30	2,530	12	1,342	2	171	14	531
1943	21	773	31	1,936	15	1,284		137	5	403
1944	15	637	29	1,596	14	1,059	1	102	6	385
1945	9	600	24	1,381	8	961	2	164	7	396
1946	12	834	26	1,878	4	1,011		173	5	493
1947	26	820	24	1,921	6	1,022	2	209	4	652
1948	24	809	28	1,745	9	995	1	185	6	589

Year	Traprock		Slate		Sandstone		Nonmetal Mines		Total	
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
1939	4	275	3	376		313	10	719	58	5,923
1940	3	269	1	355	5	249	14	826	86	6,014
1941	4	361	1	323	2	349	17	1,182	93	8,052
1942	5	334	2	334	1	329	20	1,270	132	7,619
1943	4	254		134	4	278	25	1,471	105	6,670
1944	3	228	3	146	2	293	17	1,283	90	5,729
1945		195		115	3	309	16	1,145	69	5,266
1946	3	221	2	181	3	346	26	1,369	81	6,506
1947	3	261	3	243	7	385	12	1,308	87	6,812
1948	1	260	3	195	1	340	15	1,165	88	6,175

*Data for 1948 are preliminary.

Heavy-Media Separation For Sand and Gravel*

HEAVY-MEDIA separation is a tool of inestimable value in the beneficiation of many ores and coal. At present fifteen materials, including coal, iron ore, lead-zinc ore, and diamond-bearing ground, are being concentrated in more than 50 commercial plants at the rate of 16 million tons per year. Although the application of a "sink-float" process, based on the difference in specific gravity between two or more materials, for the beneficiation of gravel was proposed several years ago, this paper describes the first successful commercial adaptation of the system to low-grade aggregate deposits.

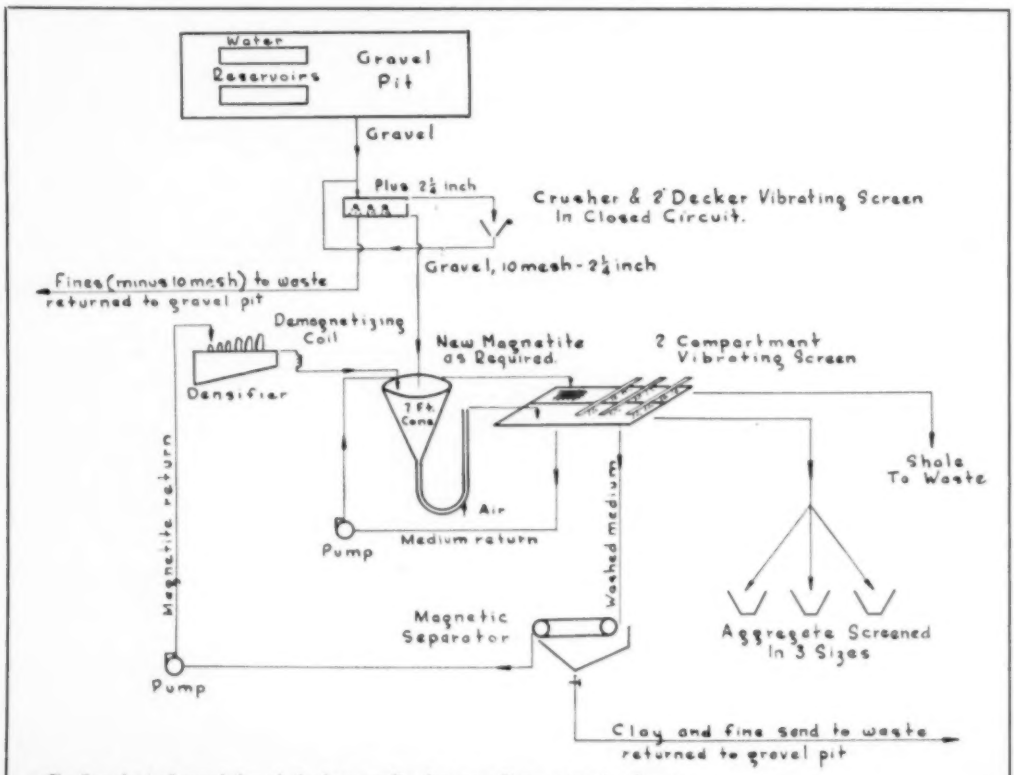
Heavy-media separation processes were introduced as a means of providing concrete aggregates of specification quality for an airport runway project near Rivers, Manitoba. As the largest and strongest pavement built to date in Canada, the concrete runway project called for a total of 120,000 cubic yards of concrete.

The closest commercial source of suitable natural aggregate was Birds Hill near Winnipeg, a rail distance of 165 miles. The present freight rate on gravel is $2.51 per cu. yd., with prospect of a further increase. Transportation has therefore been a major item in the cost estimates. To keep costs down, engineering curiosity was directed to the treatment of local gravels with the hope that a method could be devised to make this material suitable for concrete.

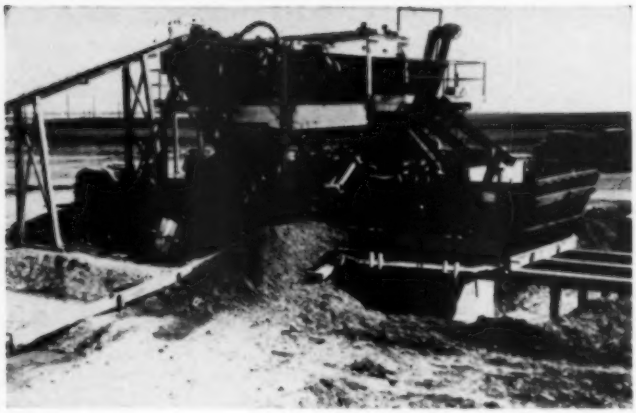
In general, the agricultural part of Manitoba west of Winnipeg and extending into Saskatchewan has scattered sand areas containing small and medium deposits of gravel. These are not water-sorted gravels, and the deposits contain a variable amount of harmful shale. Deposits in the vicinity of Rivers contain approximately 2 percent of shale in the plus 1-in. range, 5 percent in the 1-in. to 10-mesh range and 20 percent in minus 10-mesh. These deposits also contain a small amount of drip coating in the upper portions, caused by evaporation from the underside of the pebbles. The remaining constituents are hard granite, quartz and silicified limestone.

Preliminary testing indicated that the crushing and screening operation necessary with any process of separation would reduce the rotten

*Condensed from an article in the April, 1949, issue of *The Engineering Journal* by S/L C. V. Trites, M.E.I.C., and S/L J. D. Shannon, Air Material Command, R.C.A.F.



• The flow sheet of gravel through the heavy-media plant near Rivers, Manitoba, Canada.



• The Mobil Mill heavy-media plant in operation.

granite to competent sand particles, because the weakness was on the grain boundaries. At least it would reduce it to a fine sand fraction that could be wasted if necessary. It also appeared probable that the weaker coatings would be removed in this manner, and that the stronger coatings would have no ill effect. The main problem was therefore the removal of the shale.

Heavy-Media Separation Method Chosen

The obvious basis for elimination of shale was specific gravity. The shale has a specific gravity of 2.0, while the usable minerals have a specific gravity greater than 2.6. Attention was directed, therefore, to a separation based on this characteristic, specifically to the sink-float or heavy-media type of separation.

The process of separating coarse minerals by difference in specific gravities, using a finely-ground heavy mineral suspension in water to simulate a heavy liquid in which one mineral will float while another sinks, has become fairly well known to the mining industry during the last 15 years. It was estimated that gravel would have two advantages over coarse ores in the process, in that the rounded shapes would allow somewhat easier flow and that there would be no accumulation of middlings in the cone.

The heavy-media processes use either magnetite and ferrosilicon, or galena, as heavy mineral, since these are easily recovered by magnetic separation or by flotation. It was decided to use the magnetite process because of the present high cost of galena, the relative indestructibility of magnetite, and because of the possibility that even tiny amounts of lead sulphide may have an ill effect in concrete.

A deposit of suitable gravel was discovered in the fall of 1947 about 4 miles from the airport. After completion of exploration and preliminary tests, Maintenance Command, which controls construction for the R.C.A.F., authorized the forwarding of a 1000-lb. average sample to the laboratory of the American Cyanamid Company at Stamford, Conn. The result of tests was received in April of 1948. For these tests, the minus 10-mesh fraction, which cannot be treated by the standard heavy-media process, was eliminated. An evidently complete elimination of shale was easily obtained in the plus 10-mesh portion, using only magnetite and a specific gravity of 2.43. The screening operation to eliminate the minus 10-mesh also effectually disposed of the rotten granite and weak coatings. Approximately 80 percent of concrete aggregate is plus 10-mesh. The major part of the problem was consequently believed to be solved. A slightly higher specific gravity of medium is now being used and material rejected includes fossil corals, limonite, hematite concretions, chert, and shale.

On the basis of the above results and the obvious large saving in expense evident from estimates, a recommendation was made to Maintenance Command that the necessary equipment be acquired immediately.

The equipment ordered was an HMS (heavy media separation) Mobil Mill size 2M manufactured by the Western Knapp Engineering Company of San Francisco. It consists of a structural steel framework with the necessary equipment mounted, the whole being semi-portable. About six days are required to complete the bolted assembly, with a crew of six men. Assembly was completed and test runs were started on August 27 under the supervision of Graham Eby, engineer for the North American Cyanamid Company of Toronto.

The plant is erected at the gravel pit. The gravel is mined by shovel or carryall and dumped into a shallow hopper, whence it is delivered by a feeder mechanism onto an elevating belt discharging on a Cedarapids vibrating screen in combination with a 36-in. jaw crusher. The oversize is reduced to 2-in. and the undersize, below 10-mesh, is eliminated by wet screening. The prepared feed from this preliminary plant is delivered by belt to a 7-ft. inverted cone at the Mobil Mill, where it is immersed by height of fall in a medium consisting of ground magnetite. Slowly revolving arms prevent building up of the medium on the sides of the cone. The shale portion floats on the medium and is moved by slow centrifugal force to a tangential overflow launder, which conveys it to a 36-in. Allis-Chalmers vibrating screen. The heavy portion of the feed sinks through and with the medium to the inverted apex, thence down a 5-in.-square pipe to an air lift, which elevates it to the Allis-Chalmers screen. It requires about five seconds for material to pass through the cone to the screen. Both sink and float products are fed to either side of a longitudinal divider on the same screen.

The plus $\frac{3}{8}$-in. aggregate was used in concrete with sand from Birds Hill for two weeks at the end of the season. It was noted that the concrete finished much better than formerly, though the maximum size was now $2\frac{1}{2}$ in. instead of $1\frac{1}{2}$. There was a small increase in compressive strength, the average of 12 cylinders of the mixed aggregate being 4813 lbs. p. s. i. at 28 days, as compared to 4623 for the same number of cylinders of Birds Hill aggregate under nearly identical conditions.

Plant Operation

The bulk of the medium is drained from the products at the top end of the screen, and returned to the cone through a circulating pump. The remaining magnetite is drained and washed from the products by water sprays and passed to a magnetic separator, which eliminates sand and clay that have entered the circuit. The cleaned magnetite is then pumped to a densifier, which is a screw-type classifier in which the helix can be raised or lowered as desired. This item of equipment serves to dewater the magnetite and to store it or feed it back to the circuit as desired. In passing back to

the cone, the magnetite falls through a demagnetizing coil; consequently the particles of magnetite do not flocculate in the cone. A small motor generator for the coil and a compressor for the air lift are the remaining items of equipment.

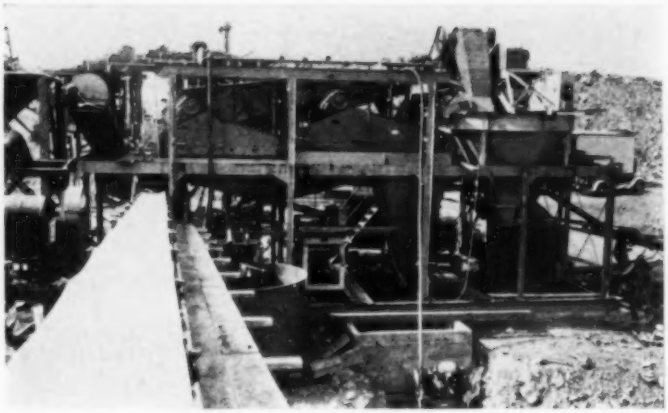
The aggregate side of the screen has been double decked and an apron screen added, so that the product is divided into three sizes as required for proper proportioning at the concrete mixer. The shale product is wasted, but may be of use as a binder in gravel surfaces. Rotten granite and weak coatings are eliminated by the crushing and screening process.

The gravel deposit rests on clay at a depth of 13 ft. As the pit enlarged, reservoirs were excavated in the clay, and the seepage, which is small in this semi-arid climate, is yet enough over the large area of the excavations to make up all lost water. All wasted water with its sand and clay content is returned to the pit and loses most of its burden before entering the pools. The water supply pump is placed at the clear end of the reservoirs. The Mobil Mill can operate satisfactorily at less than 200 gal. per cu. yd. of product, but approximately four times this amount is required in wet screening to eliminate the minus 10-mesh and launder it back to the pit. The actual loss of water is simply the difference in the water content of the products as mined and as delivered to the bins.

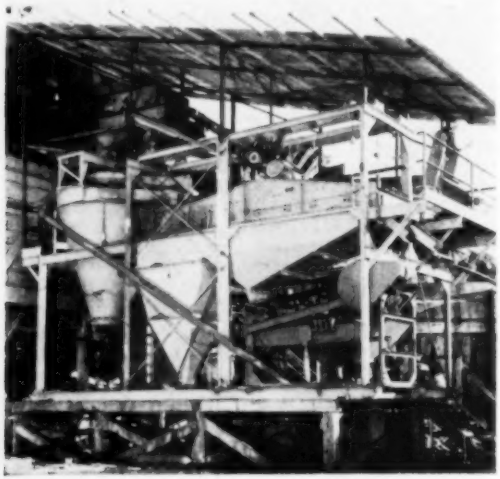
Experimenting Brought Improvements

Initial operation of the plant was not smooth. In addition to shortage of water, due to underestimating the pump capacity required for elimination of the minus 10-mesh, and due to the small size of excavation when the pit was started, there was serious delay in delivery of the fine screens.

Operation of the Mobil Mill showed that it does not require an even rate of feed. Sudden changes from no load to full load did not affect the clean separation of the shale. For prolonged shutdown, the magnetite is stored partly in the densifier and partly in the hopper beneath the screen. For the shutdown of several hours, it is most convenient to leave the cone circuit in operation at a slow rate. In case of power failure, perhaps 20 minutes may be required to get the magnetite into suspension again. Plugging of the cone or airlift from any cause is relieved by opening the gate at the airlift and dumping, or partly dumping, the contents of the cone into a sump. The process is essentially simple and nearly foolproof; so trouble is rare.



• A heavy-media plant in Minnesota treating iron ore at the rate of 100 t.p.h.



• A heavy-media plant treating coal in Illinois at the rate of 60 t.p.h.

The Mobil Mill occupies a space 28 ft. long, 16 ft. in height and 14 ft. wide. In 1948 this comparatively small plant produced without difficulty in normal operation 30 cu. yds. per hour of aggregate. Capacity of the cone and screen was not reached at any time. At one time the capacity of the magnetic separator to remove slimes and fine sand from the circuit was reached, but examination of the pit at this time showed that the clay overburden was not properly stripped. In 1949 the plant produced 800 tons of cleaned gravel in an 11-hour shift. Based on a 70/30 percent split of the feed, the plant actually processed approximately 1000 tons per shift.

Costs

The normal operating costs of the Mobil Mill are easily estimated. Only one operator is required and a week of training is sufficient. The only tests required are for the specific gravity of the medium at the top and bottom of the cone. With such a considerable difference in specific gravity between the shale and the aggregate, supervision is easy. The plant requires 65 hp. in electric motors. The magnetite loss is less than ½ lb. per cu. yd. of aggregate produced. Disregarding lost time, these costs total about 7 cents per cu. yd. on this project. It is estimated that screen life will range from 5000 to 10,000 cu. yds. Pump liners will probably be required every 20,000 cu. yds.

It is expected that total operating cost during the coming (1949) season will average close to 10 cents per cu. yd. Writeoff of the plant cost is estimated at 5 cents per cu. yd. Patent costs are in the form of a royalty on production payable to the American Zinc, Lead and Smelting Company, which controls the patents, and the American Cyana-

mid Company acts as technical and sales representative for American Zinc. The major costs in the project are mining of the gravel, the initial crushing and screening operation and the trucking cost to the airport. The proportion of lost time caused by the Mobil Mill has been negligible to date. Pending detailed costs from a full season of operation, it is estimated that the mining and crushing - screening operations will cost 65 cents per cu. yd. for each and 10 cents per mile for trucking, a distance of 4 miles, making a total of $1.70 per yd. These estimates are believed to be ample.

The cost of nearest commercial aggregates loaded into the cars at Birds Hill was 80 cents for sand and $1.40 for coarse aggregate. It is expected that these prices may be increased as much as 20 percent for 1949. With a present freight rate of $2.51 per yd., the delivered cost for the 1949 season will total $3.90 per yd.; in addition, there is the cost of unloading the cars at 40 cents per cu. yd., unless they can be unloaded direct to the batcher.

The plant was erected seven weeks before the end of the (1948) season. Of this time, only four weeks was available because the crushing and screening plant was otherwise in use. Operation on a 3-shift basis was confined to the last ten days of the season. A total of 5500 cu. yds. of aggregates was produced. The production of aggregates for the runway has now been completed and the plant is processing 20,000 cu. yds. of aggregates for future use. It is possible that an additional 40,000 cu. yds. may be processed.

Before removing the plant, a stockpile will be processed for future construction. An investigation will be made to ascertain whether it is worth while to process aggregates for concrete block construction, so that materials will be cheaply available for a future building program.

The heavy-media process can be used to great advantage for the beneficiation of poor gravels, if the harmful material can be removed by specific gravity methods. It may be especially valuable in this age of high freight rates. The cost of the process, including royalty, is about equivalent, in Manitoba, to a truck haul of two miles.

Where Process Is Suitable

In order to decide whether the process can be used successfully on any project, the following should serve as a guide: The deleterious material must be lighter or heavier than the desired constituents of the gravel, but a large difference is not essential. A high specific gravity of medium can be obtained by substituting ferro-silicon for part of the magnetite, and a difference of 0.1 in specific gravity is sufficient for separation. The materials in the deposit should be naturally proportioned in the correct sizes, or be capable of being made so by crushing and screening without too much cost.

Power can be obtained by substituting self-contained power units where necessary. Water may be a major problem. As explained, the process does not require much new water, and 30 g.p.m. would probably be ample. It does, however, require a large amount of circulating water for screening out the minus 10-mesh. A settlement area, where the water can drop its burden of clay and sand, is therefore essential. If the water table is close to the surface, there will be no difficulty; but if the water table is low, reservoirs may be made in clay, as in this project, or settlement tanks may be necessary. Circular tanks with a raking mechanism would be excellent, but rectangular tanks of fairly small area can be used if cleaned out periodically. The addition of lime or some other settling agent would get rid of colloidal clay quickly.

It is now recognized that materials in aggregate that are harmful to concrete may be also injurious to asphalt. This process should therefore have a considerable future in the gravel industry, particularly for concrete and asphalt road work, since it is semi-portable, but also whenever cheaper or higher strength aggregates can be obtained by its use.

Washington News Letter

(*From page 54*)

1949 are expected to show even more substantial drops, principally because of the strikes in the steel and coal industries and the effects of these on railroads, steel fabricators and a wide variety of other industries.

Government Contracts

A recent ruling of the General Accounting Office will be of special interest to firms who are located in outlying communities. It is now possible to negotiate a contract with the Federal Government without competitive bidding, if: (1) it is a repair job; (2) there is only one supplier in the locality; and (3) the quantity and types of materials needed are not known in advance.

New Income Tax Forms

After testing it out for a year, the Bureau of Internal Revenue has decided to use a combined withholding tax and Social Security tax form. Formerly two separate returns had to be made. The new combined form will be known as Form 941. It should save the employer a substantial amount of work. It is sure to save the Bureau of Internal Revenue a tremendous amount of record-keeping.

Employers should secure copies of the new form as soon as possible, study it, and train their office employees to fill it out properly. The new form will be used for the first time for reporting taxes for January, 1950.

37th Safety Congress

(*From page 59*)

entitled *For Pete's Sake*, giving a first-hand account of successful employee cooperation in the safety program of a cement plant, was distributed at the first day's session by the Portland Cement Association. Aims, accomplishments, psychological factors, and worker interest and pride in such a project are cleverly brought out in conversational remarks.

Delivered at the Mining session on Thursday afternoon, particularly of interest to nonmetallic minerals producers was a paper, *Split Second Delay Blasting*, by D. M. McFarland, manager, Technical Division, Atlas Powder Co. The introduction of millisecond delays, he said, in addition to improving breakage and backbreak in multiple-row quarry blasts, has noticeably decreased noise and vibration effects and has proved successful in protecting quarry operators against damage claims. He urged that miners using the new method be given a full explanation of its worth and that all conditions be suitable before any experiments are made.

Hayden Brooks of Birmingham, Ala., has announced that world-wide rights for the manufacture and sale of the Brooks-Taylor aged lime putty plant has been granted to Lime Equipment Company, Lebanon. Equipment for production of aged lime putty under the Brooks-Taylor patents, has heretofore been manufactured by the Chicago Bridge and Iron Company.

A.S.T.M. Holds First Pacific Area National Meeting in San Francisco

By C. E. PROUDLEY
Chief Materials & Test Engineer
N. C. State Highway & Public Works Comm.

ELEVEN of the major committees of the American Society for Testing Materials held meetings during the week of October 10, at the Fairmont and Mark Hopkins Hotels in San Francisco, to which all members and potential members of the society were invited. The registered attendance was well over 850, including more than 100 ladies. It was rated a success from every point of view.

One session was devoted to ceramic and concrete products and included papers by California members on such subjects as *Design, Construction and Properities of Reinforced Grouted Brick Masonry* by N. W. Kelch, Brick Manufacturers Association of Southern California; *Use of Precast Concrete Units in Southern California* by C. D. Wailes Jr., Wailes-Bageman, Inc., Los Angeles; *Some Recent Developments in Vitrified Clay Pipe and Conduit* by H. W. Jewell, Pacific Clay Products, Los Angeles; and *Reinforced Concrete Pipe* by E. L. Johnson, Concrete Conduit Company, Colton, Calif.

An all-day session was held by Committees C-1 and C-9 jointly, at which a symposium on use of pozzolanic materials in mortars and concretes was given under the chairmanship of R. F. Blanks, U. S. Bureau of Reclamation. At least two schools of thought entered into the discussion of the nine papers, one that pozzolanic materials eliminates all deleterious reactions between portland cement and aggregates, and the other that even granting the reduction of undesirable reactions by the use of pozzolans, they introduced other objectionable properties into the concrete which cannot be overlooked. A combination of pozzolanic materials and air entrainment seemed to offer one solution to the differences of opinion. Authors of the papers were R. E. Davis, Alexander Klein and E. H. Brown of the University of California; H. S. Meissner, R. C. Mielenz, O. J. Glantz, L. P. Witte, W. T. Moran and J. L. Gilliland of the Denver office of the Bureau of Reclamation; C. H. Scholer, Kansas State College; W. C. Hanna, California Portland Cement Company; W. C. Lerch, Portland Cement Association, Chicago; and T. E. Stanton, California Division of Highways, Sacramento.

Preceding the symposium a very enlightening paper was presented by F. H. Jackson, U. S. Bureau of Public Roads, Washington, D. C., on the topic *Why Type II Cement?* Although his conclusions were limited to the resistance of concrete to scaling and disintegration due to frost action, it is important to note that field tests and observations indicate that the mere specifying of Type II portland cement will not assure any better performance than where Type I is permitted. Comparisons of eight typical Type I and five Type II cements in four of the projects of the long-time study of cement performance in concrete which have been exposed to severe natural weathering for periods up to eight years formed the basis for the conclusions. Mr. Jackson stated further, "It is recognized that the above conclusion regarding Type II cement runs counter to certain theoretical considerations and laboratory test data to which reference has been made and which do indicate that a reduction in the C_3A compound is desirable. It is also recognized that, so far as the long-time study is concerned, the final answer will probably not be forthcoming for several years. However, it should be pointed out that, in addition to the present indications of the study, we have the results of many years' experience with high C_3A cements in structures which have given excellent service."

Mr. Jackson's paper was followed by a report by G. J. Verbeck and C. W. Foster of the Portland Cement Association, on *Long-Time Study of*

R. F. Blanks

W. C. Lerch

P. M. Woodworth

Cement Performance in Concrete, with Special Reference to Heats of Hydration, which showed the present condition of the practically full-sized structures at their Naperville, Ill., test farm, where a wide range of compositions of portland cement and concrete have been under observation for years.

The method for making materials surveys by the electrical resistivity of mineral strata in deposits was again described and discussed, this continuing a subject previouly considered at the 1949 annual meeting of the society in Atlantic City. This time E. A. Abdun-Nur and D. Wantland of the U. S. Bureau of Reclamation, Denver, presented *Electrical Resistivity Method Applied to the Investigation of Construction Materials Deposits.* They were conservative in their estimate of the saving in time and expense as compared with the drilling methods, according to several who discussed the paper. Savings as great as 90 percent were estimated by some for certain favorable conditions and well over 60 percent in general. Among those who discussed the paper were E. R. Shepard (written), U. S. Corps of Engineers, Washington, D. C.; L. E. Gregg, Kentucky State Highway Department, Lexington; D. P. Krynine, University of California; and Bryant Mather, Waterways Experiment Station, Clinton, Miss.

Concrete and concrete aggregates, under the jurisdiction of Committee C-9, Professor K. B. Woods of Purdue University, chairman, were the subjects of the final session. Professor Woods described the operation of the committee for the benefit of those who were not members and also reviewed its history from its organization in 1914 under the late Sanford E. Thompson to the present time. The following former chairmen and secretaries in attendance were recognized: A. T. Goldbeck, National Crushed Stone Association, who has been both chairman and secretary; F. H. Jackson, U. S. Bureau of Public Roads; and Stanton Walker, National Sand and Gravel Association and National Ready Mixed Concrete Association, secretary from 1926 to 1932 and again from 1942 to the present.

Papers presented at this session were mostly formal reports of several subcommittees, such as *Methods of Testing and Specifications for Admixtures* under Bryant Mather, Waterways Experiment Station; *Current Specifications and Methods of Testing Curing Compounds* under C. E. Proudley, North Carolina State Highway and Public Works Commission; and *Specifications for Lightweight Aggregates* under P. M. Woodworth, The Waylite Co., Chicago. In his report Mr. Woodworth stressed the fact that lightweight aggregates are of no value unless the weight of the concrete is the primary consideration; however, in many cases excellent quality is attainable also.

Professor J. W. Kelly and N. E. Haavik. University of California offered a *Simple Field Test for Consistency of Concrete,* which is a modification of penetration methods used in several foreign countries. It has the advantage of high speed in performance and good correlation with the slump test. Sufficient tests on concrete construction jobs have been made in California to justify the enthusiasm of the authors. One user stated that he had even made consistency tests with the apparatus *inside the transit mixer drum!* Professor Kelly offered to furnish details of the simple and inexpensive apparatus to any who requested them and hoped that others having facilities for making practical studies would give the method a trial and report their experiences to him or to the committee.

Other committees which convened during the Pacific Area Annual Meeting were C-7 on lime, C-12 on mortars for unit masonry, C-15 on manufactured masonry units, C-19 on structural sandwich construction, D-2 on petroleum products and lubricants, D-4 on road and paving materials, D-7 on wood, D-8 on bituminous waterproofing and roofing materials, and D-18 on soils for engineering purposes.

Modern Crushing Plant Gets Gravel from Prehistoric Lake

At Holladay, 15 miles southeast of Salt Lake City, the Big Cottonwood Sand & Gravel Company is operating a crushing plant on a steep hillside which at one time was part of the shoreline of prehistoric Lake Bonneville. From this hillside a mixture of silt-free gravel and small boulders washed down from nearby Big Cottonwood Canyon is fed to the crusher to form six sizes of material from sand to 1½-in. stone.

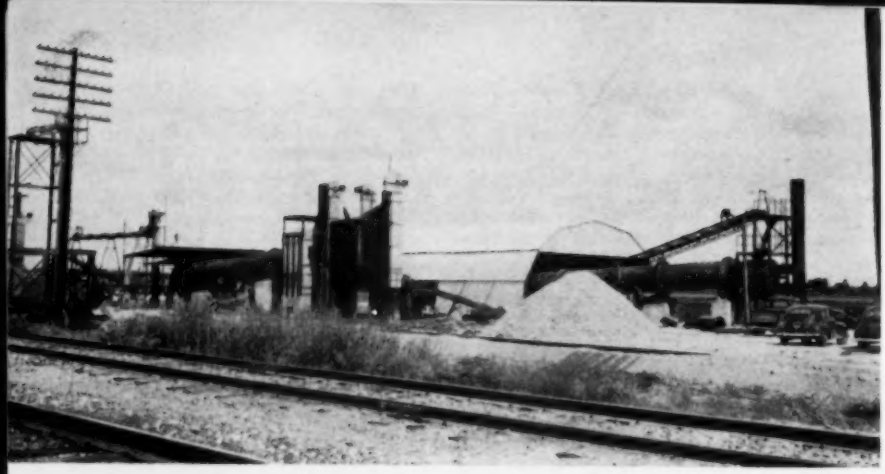
Two International power units, a UD-18A (125 hp. at 1600 r.p.m.) and a UD-9 (53 hp. at 1500 r.p.m.) operate the plant. The UD-18A provides power for operating a 40 kv.-a.-generator, a Pioneer 10- by 24-in. jaw crusher, three belts and a reciprocating feeder. The material to be crushed is bulldozed to the reciprocating feeder and then conveyed by belt to the jaw crusher. From the jaw crusher the material is conveyed by another belt to the Pioneer screen. Finally, the over-size material is conveyed by a third belt to a Pioneer 18- by 24-in. roll crusher operated by the UD-9 power unit.

N. Ohio Sand-Gravel Beds Listed in New Bulletin

Sand and Gravel Resources in Northern Ohio, a 24-page report recently published by the Division of Geological Survey in the (Ohio) Department of Natural Resources may now be obtained free upon application to the department at Orton Hall, Ohio State University, Columbus, O.

The geological distribution of these deposits is discussed in detail, with emphasis upon occurrences which offer promise for additional production in areas where shortages exist. A two-color map indicates the location of sand and gravel pits in northern Ohio.

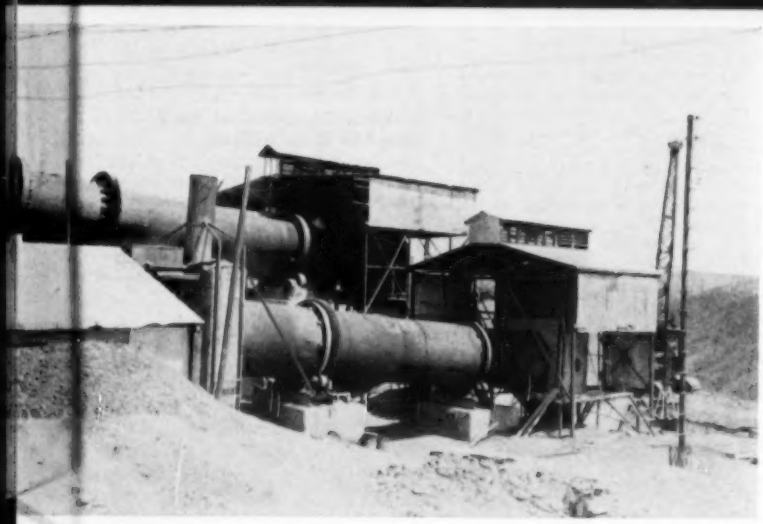
• The Big Cottonwood Sand & Gravel Company's plant on the shores of a prehistoric lake.

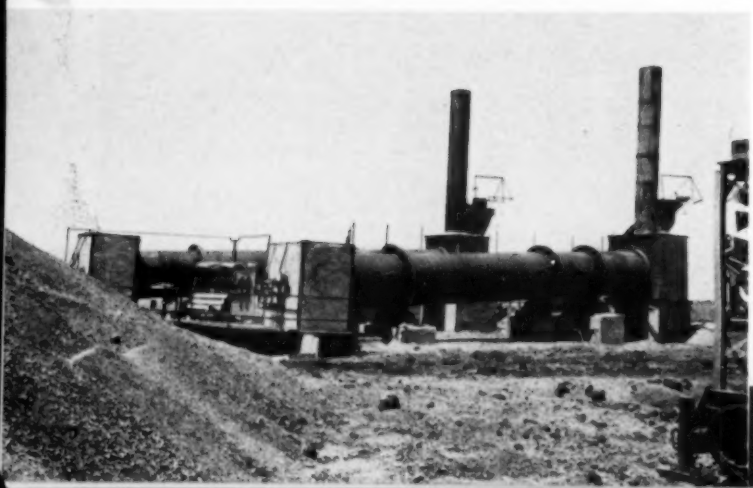


HERCULITE Corp., Rosenberg. General view of the Herculite Corporation's 2 - kiln plant near Houston. Dryer is at right and kilns at left.

Eight kilns, all built since 1946, place Lone Star State in top bracket of lightweight aggregate production. Output exceeds 3,200 cu. yds. per day.

BY
WILLIAM M. AVERY





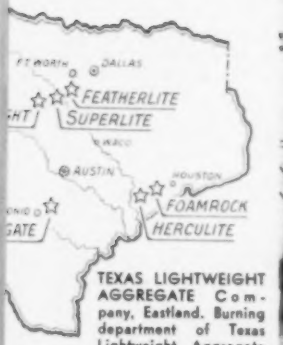
another ON THE SPOT report

ONE of the outstanding developments in the American construction industry during the past decade has been the tremendous increase in the demand for lightweight aggregates, resulting in acute shortages in sections of the country where building activity was greatest. Although the field is still wide open to new capital and new ideas, the supply situation has been relieved to a considerable extent in some of the more critical areas by the construction of new single-and multiple-kiln plants for the expansion of clays, shales, and slates.

By a wide margin the greatest activity along these lines has taken place in the state of Texas. Prior to 1946 there was not a single kiln in the state producing clinker for lightweight aggregate, although there was a tremendous demand for acceptable lightweight structural materials to supplement or replace such relatively low-strength materials as pumice and volcanic cinders. Undoubtedly the war was an important factor in the failure to meet this demand at an earlier date, for when the log jam broke in 1946, the rush to build plants amounted almost to a stampede. When we visited the state several months ago

FEATHERLITE Corp., Strawn. (Above) General view of The Featherlite Corporation's kilns. Clinker is discharged into concrete pits just beyond burner housings.

NATIONAL AGGREGATE Corp., Converse. (Left) The two kilns of the National Aggregate Corp. near San Antonio. Stockpile at left is clinker ready for grinding.



TEXAS LIGHTWEIGHT AGGREGATE Company, Eastland. Burning department of Texas Lightweight Aggregate Company's 2-kiln plant.

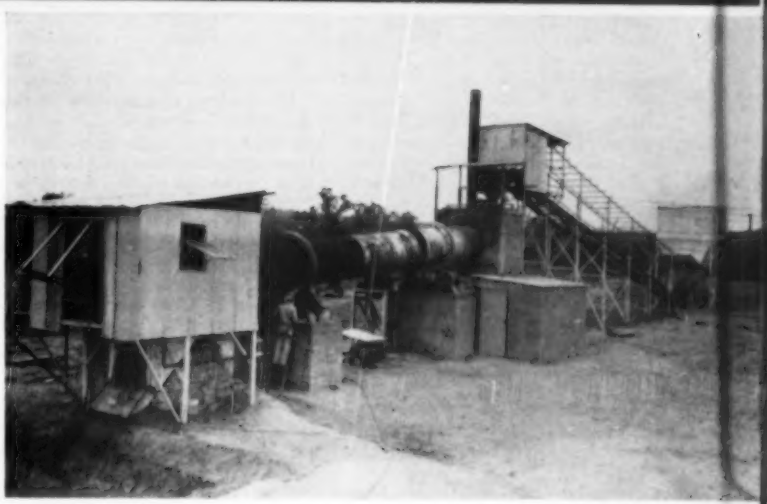
EXPANDED CLAY-SHALE AGGREGATES IN TEXAS

we found eleven kilns producing for six separate and distinct companies. In less than three years the state had gone from zero output to unquestioned leadership in the production of the expanded clay-shale types of lightweight aggregate.

Because the six plants involved in this remarkable development have a great deal in common, both from the standpoint of raw materials and methods of processing, they will be discussed, under separate identifying headings, in one article. With several notable exceptions, their chief differences reflect merely the normal and inevitable differences in the approach of several designers to the same basic problem.

The Featherlite Corporation

Although there are differences of opinion as to just which of the companies produced the first lightweight clinker in the state, the evidence seems to indicate that The Featherlite Corporation, located at Strawn, was first by several weeks. The Pennsylvania age shale which this company processes was used for many years in the production of Thurber paving brick. It contains about 81.6 percent SiO_2, 4.4 percent Fe_2O_3, 3.5 percent Al_2O_3, and shows an



SUPERLITE AGGREGATE Co., Ranger. (Above) The Superlite Aggregate Company's single-kiln plant. A second kiln measuring 6- by 10-ft. is under construction.

FOAMROCK Corp., Stafford. (Right) View of the 6- by 60-ft. kiln. Stockpile in the background is unground clinker.

• Earl T. Noland, general superintendent of the Featherlite plant.

ignition loss of 5.5 percent.

The deposit, which runs to a depth of 135 ft., is overlain by 8 or 10 ft. of clay overburden. This is stripped and hauled to spoil banks with a 7-cu. yd. Continental scraper drawn by an Allis-Chalmers HD-14 tractor. The same units are used for recovering the shale, which is loaded into dump trucks from a ramp adjacent to the pit.

At the plant the raw shale is dumped into a 9-ft.-diameter Pittsburgh dry pan for presizing. After passing through the 1½- by 3-in. slots in the dry pan, most of the material is minus 1½-in. The presized shale is fed by belt conveyors to covered storage pits adjacent to the kilns.

There are two 60-ft. kilns in the plant and one 40-ft. in length. One of the long units is 6 ft. 6 in. in diameter, and the remaining two are 6 ft. in diameter. The two long kilns are lined with fire brick for two-thirds of their length, and with Featherlite concrete for a distance of 20 ft. from the feed ends. The small kiln is lined with fire brick for its entire length.

The kilns are fired with natural gas, and a reducing flame is used because this practice has been found to result in appreciably larger clinker output. Each unit is equipped with two burners, one pitched down 10 deg. from axial position, the other 20 to 25 deg. at 8:00 o'clock. The kilns turn clockwise at speeds of about 90 revolutions per hour. Only one of the units is equipped with a variable speed drive.

The clinker reaches the point of incipient fusion at 6 to 8 ft. from the discharge ends of the kilns. Its temperature at this point is approximately 2100 deg. F., which is the maximum reached. Gas flame temperatures, however, go up to a probable maximum of 2600 deg. F. The predominant color of the surface of the material is terra cotta, while the interior is slate-colored.

Qualitatively the product of the short kilns is identical with that of the long ones, but on an average it runs somewhat finer. As compared with production of 85 cu. yds. per 24-hr. day on each of the long kilns, the output of the short kiln is about 75 cu. yds.

Clinker drops from the kilns in separate concrete-lined pits from which it is loaded into a general stockpile with a Lorain 40 crane mounting a ¾-cu. yd. clamshell. This machine is also used for loading from the stockpile into trucks which haul the clinker to the nearby rail siding, where the final crushing and sizing operation is carried out. Normally about 5000 cu. yds. of clinker is kept on hand.

At the rail siding plant, which is located about ¾ of a mile from the kilns, the product is fed to a 9-ft.-diameter United Iron Works dry pan, which reduces it to about 99.5 percent passing ⅜-in.; 69.0 percent The material is then elevated and chuted into railway cars. A small part of the output may be stored in a silo for loading local trucks, but rail shipments account for most of the company's production. A 68-cu. yd. car can be loaded in about 1½ hours.

At present separate sizes of aggregate are shipped only on special order, but the company plans in the near future to move the sizing plant alongside the burner plant, and in doing this provision will be made for separating the entire output. Some sizing for special orders is done at the existing plant with a triple-deck 4- by 6-ft. Sutton, Steele & Steele shaker screen.

As shipped, Featherlite concrete aggregate weighs about 56 lbs. per cu. ft., or approximately 1500 lbs. per cu. yd., dry and loose. Screen analysis of the product shows 100 percent passing ⅜-in., 69.0 percent passing No. 4; 55.6 percent passing No. 8; 33.8 percent passing No. 16; 16.2 percent passing No. 30; 11.8 percent passing No. 50; and 7.7 percent passing No. 100. The apparent specific gravity of the material is 1.43, the bulk specific gravity 1.38, and its water absorption by weight is 10.4 percent.

In a 1 to 5 six-sack mix, Featherlite dry concrete weighs 91.3 lbs. per cu. ft., and tests show compressive strengths at 28 days in excess of 2,500 p.s.i. The material is said

• At Featherlite clinker is transferred from the pits to a 5000-cu. yd. storage pile with this ¾-cu. yd. crane.

• Featherlite's tractor-drawn 7-cu. yd. scraper discharging raw shale into the dump truck which hauls materials to the burning plant.

• A view of the 9-ft.-diameter dry pan which sizes the clinker just before it is shipped from the Featherlite plant.

• Right: On special orders only the product at Featherlite is split into separate sizes with this 4- by 6-ft. triple-deck shaker screen.

to have excellent refractory qualities for use in temperatures up to 2200 deg. F.

Normal 24-hour operations of the Strawn plant require a crew of 29 men. The company's president is Jack Frost of Dallas. Alex T. Mickle, also of Dallas, is executive vice-president, and J. R. Stuart is treasurer and acting vice-president. Earl T. Noland is general superintendent.

Texas Lightweight Aggregate Company

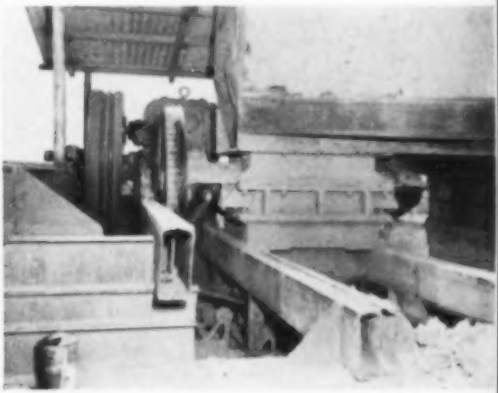
Although all the materials covered in this report bear a close resemblance to haydite, only one of the concerns involved, the Texas Lightweight Aggregate Company, located at Eastland, actually operates under a haydite franchise. This company started production in the fall of 1946 with two 6- by 60-ft. Vulcan rotary kilns.

The shale raw material processed at Eastland is considerably harder than the materials being used by other companies in Texas. Only a relatively small proportion, however, requires drilling and blasting, since a power shovel is adequate for removing most of the material. There is a rather heavy layer of overburden which is stripped with an Allis-Chalmers HD-7 tractor mounting a Baker dozer. Some 10 to 12 ft. of sandstone below the overburden must be drilled with jackhammers and blasted off before actual recovery operations can begin on the 25-ft.-high shale face. The shale is loaded into dump trucks with a ½-cu. yd. Lorain gasoline-powered shovel.

At the burning plant the shale is prepared for the kilns by passing it through an 18- by 36-in. Eagle standard double-roll crusher. Reduced to about minus 3-in., the material drops from the crusher onto an 18-in. wide inclined belt conveyor which discharges by means of a splitter into either of the two 100-cu. yd. bins ahead of the kilns. From this point on the flow sheet consists of two parallel circuits—one for each of the 6- by 60-ft. kilns.

The rate of feed from the bins is controlled by variable speed pan

• A view in the Eastland quarry of the Texas Lightweight Aggregate Company. Most of the shale can be removed with the ½-cu. yd. shovel pictured, but at times some drilling and blasting is necessary.



• Shale is prepared for the kilns at Texas Lightweight by this 18- by 36-in. double-roll crusher.

feeders which discharge into bucket elevators. These in turn lift the material to the feed pipes which discharge into the kilns.

The kilns are natural-gas fired with three burners, all of which are directed downward so that the point of maximum temperature is perhaps 10 ft. from the discharge ends. As the material reaches this point, where the temperature is in excess of 2000 deg. F., it becomes viscous, and expansion is caused by the liberation of gases by various chemical components of the shale. Lifters are used in the upper sections at the kilns. Clinker is discharged into a 24-in. pan conveyor running transverse to the kilns and dumped into a cooling pit adjacent to the burner floor.

Some clinker is stockpiled, but the demand has so far precluded any large-scale storage. The crushing and sizing plant is fed with a clamshell. This flow sheet involves successively a bin, a Ridell haydite crusher, a bucket elevator, and a 4- by 12-ft. double-deck Cedarapids vibrating screen in closed circuit with the crusher. Finished sizes drop from the screen into ground-level storage compartments.

Two sizes of material are stocked: fines, which are 100 percent minus No. 4, and coarse, which passes 3/8-in. and is retained on No. 4. The ground-level bins can accommodate 150 cu. yds. of each size, and there is a third compartment available for emergency use.

The storage piles are located over a reclaiming belt, and if necessary the two sizes of material can be blended at this point. However, because of the danger of segregation in transit, the company prefers to load the two sizes separately and have the customer do the blending at his plant. The reclaiming belt elevates the material and discharges it into cars on the plant siding. All shipments are by rail, and a standard car can be loaded in about an hour.

At the time of our visit the combined output of the two kilns at Eastland was 200 cu. yds. per 24-hr. day. The company was then engaged in making improvements which were expected to increase output materially. This work is probably well along toward completion now. The average weight of the fine and coarse material produced at Eastland is 1450 to 1500 lbs. per cu. yd.

Most of the company's output is shipped to users located within 125 miles of the plant, but there are customers at Corpus Christi and Lubbock, the former some 300 miles, and the latter about 225 miles, from Eastland. The largest single consumer is the concrete masonry unit plant of the Texcrete Company at Dallas.

Charles L. Moruzzi of Dallas is president of the company, and Louis B. Weatherbee is special representative and technical consultant. Hughie Wright is plant superintendent. Nineteen men are employed in the 3-shift operation.

• Louis B. Weatherbee, special representative and technical consultant for Texas Lightweight, and Hughie Wright, plant superintendent.

Foamrock Corporation

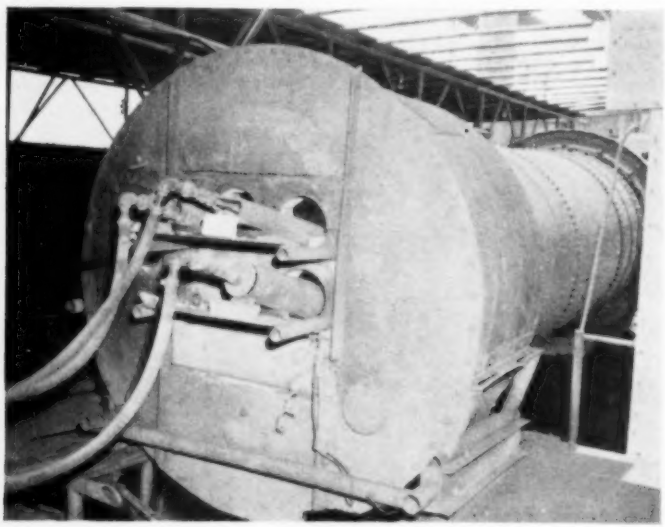
Production was started at Foamrock Corporation's single-kiln plant at Stafford, just south of Houston, in October, 1948. Here the raw material used comes from a 6-ft. layer of black gumbo shale. There is no overburden on the deposit.

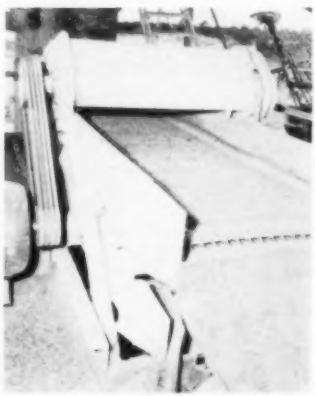
The material is first scarified and allowed to slake somewhat in the sun and wind. Then it is recovered and hauled to the burning plant with a Gar Wood 3-cu. yd. scraper drawn by a Case LAI tractor.

At the plant the raw shale is dumped in piles in the covered storage area or fed directly into the burning circuit. Covered storage is absolutely required in operations of this type because of the difficulty of recovering the raw material during rainy periods. Most operators consider it desirable to have enough shale under cover to operate their plants for several weeks if necessary. While the shed at the Stafford plant will conveniently store only about 500 cu. yds. of material, additional storage capacity can be gained by extending the piles beyond the shed and covering them with tarpaulins.

Stored material is fed to a 3-cu. yd. hopper by means of a slack-line

• A closeup of the firing end of one of the Eastland rotary kilns, showing the three burners in position. The fuel is natural gas.





• Final sizing of Eastland haydite is done on this 4- by 12-ft. double-deck vibrating screen.

• Foamrock's 3-cu. yd. scraper discharging shale directly into the surge hopper from which the Stafford kiln is fed.

• Lawrence M. Harris, plant superintendent, and A. R. McVoy, head of the Foamrock Corporation.

scraper powered by an Ingersoll-Rand 2-drum hoist. Although the hopper is covered with grizzly bars spaced at 3-in., there is actually very little material that large, since the shale is well broken up by the scraper. The kiln is fed from the surge hopper by means of a belt feeder and a bucket elevator.

The burning is done in a 6- by 60-ft. rotary kiln salvaged when the Wolverine cement plant in Michigan was dismantled several years ago. It is driven at 30 revolutions per hour by a 15-hp. variable-speed slip-ring motor. The pitch is $\frac{5}{8}$ of an inch per foot. It is fired with natural gas, using three burners with various pitches.

The kiln discharges into an open pit which is cleaned about once every 12 hours. This is done with a 1-cu. yd. clamshell manipulated by a stiff-leg derrick which has a 60-ft. boom. The motive power is a Lidgerwood hoist. Most of the material is left in clinker form until just before it is to be shipped, although a small amount (perhaps 50 cu. yds.) of crushed material is stored occasionally to take care of crushed shipments.

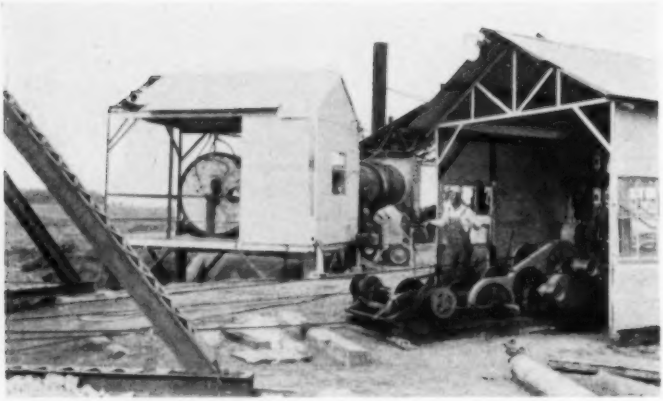
The stiff leg transfers the clinker from the stockpile to a hopper which is the first unit in the final crushing circuit. From the hopper a Jeffrey vibrating feeder discharges the clinker into a 7-ft. diameter dry pan, which in turn discharges into the boot of a bucket elevator. From that point most of the flow is spouted directly into open-top cars, except for the relatively small amount which may be stored in an adjacent pit.

Since most of the company's present customers prefer a blended mix, the plant is not equipped to separate the end product into component sizes. There is some thought, however, of installing a screen for this purpose eventually. As now shipped, the size range of the product is from $\frac{3}{8}$-in. down to dust.

The production of the Stafford

• Foamrock clinker is reduced to minus $\frac{3}{8}$-in. in this 7-ft.-diameter dry pan. The material flowing from the spout is the finished product, intended for truck shipment.

• The firing end of the rotary kiln at Stafford, showing the three burners used. Like most kilns used to expand shale, this one is of the counterflow type.



• The stiff-leg derrick which handles clinker at the Stafford plant is powered by the multi-drum electric hoist.

kiln ranges from 110 to 115 cu. yds. per 24-hr. day, and the weight of the blended material is approximately 1350 lbs. per cu. yd. We were told that a standard 8- by 8- by 16-in. concrete masonry unit made with Foamrock weighs 23 or 24 lbs., and shows 10-day compressive strengths up to 1400 p.s.i. The predominant color of the material is brown, but various shades of gray and red are also present.

The bulk of this company's output is being shipped to block plants, mainly by rail. The largest market is in the immediate vicinity of Houston, but some shipments are made into San Antonio, almost 200 miles from the plant.

A. R. McVoy is head of the Foamrock Corp., and Lawrence M. Harris is plant superintendent. Twelve men are employed in the 24-hr. operation.

National Aggregate Corporation

The National Aggregate Corporation started production with a 2-kiln plant at Converse, just north of San Antonio, in April of this year. Its product is marketed under the trade name "Nacolite."

Although no analysis of the raw material was available at the time of our visit, it appeared to be similar to the black gumbo shale being processed at a number of the plants in the Southwest. The material extends to depths of 80 ft. or more. The overburden, averaging approximately 4 ft., is stripped with an Allis-Chalmers tractor-scraper. There are at present two recovery areas in use on the 50-acre property —one some 300 ft. from the burning plant and the other about 700 ft. away.

Recovery is accomplished with a 7 cu. yd. Gar Wood scraper drawn by an Allis-Chalmers HD-10 crawler tractor. The shale is hauled to a 60- by 80-ft. ground-level storage area adjacent to the kilns, where approximately 2000 cu. yds. of the material can be stored. This area, enclosed on 3 sides by 13-ft. high reinforced-concrete retaining walls, is now being roofed over to assure an adequate supply of dry feed for the kilns even during prolonged periods of rain.

Syntron vibrating feeders in the floor of the storage shed feed the shale onto the tunnel-housed belt conveyors which supply each of the rotary kilns. These feeders are controlled by rheostats located on the burner floor, so that the operator has close control at all times over the rate of feed to the two kilns.

The kilns are 6 ft. in diameter (inside) by 50 ft. long, and are lined for their full length with 6-in. fire brick. The back 25 ft. of each kiln contains 3- by 2½-in. cast-iron angles, 4 ft. in length, which act as lifters. They are driven at 45 revolutions per hour by 3-hp. constant-speed motors, through gear reducers and girth gears. The pitch is 1½ in. per foot.

The kilns, which were built by the Standard Tool & Machine Co., are fired with natural gas, using 6 burners set at various angles so as to distribute the heat as widely as possible. In the hot zone (12 to 18 ft. from the discharge ends) the maximum temperature is about 2,100 deg. F. At the time of our visit, not long after the plant was started up, the two units were producing 220 cu. yds. per day, but the company expected in the near future to step this up considerably —perhaps to as much at 270 cu. yds.

Clinker is removed from the kiln discharge pits and cast into an adjacent stockpile with a Model E Quickway crane, which slings a ½-cu. yd. clamshell bucket from its 35-ft. boom. We were somewhat startled to learn that the same crane was used (without mishap) to set the two kilns.

The final crushing and screen circuit, which is fed with the Quickway crane, consists of a 2-cu. yd. hopper, a Syntron vibrating feeder feeding a 4- by 8-ft. double-deck Simplicity vibrating screen, and a 24- by 16-in. Universal Star Gear roll crusher in closed-circuit with the screen. The rejects from both decks of the screen (plus ⅜-in. and plus ⅜-in.) go directly to the roll crusher, and are then re-elevated to the screen.

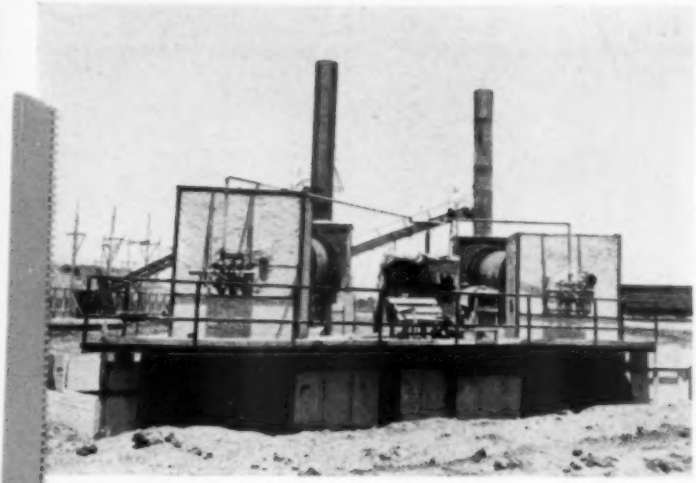
Since the plant at present produces only one size of material (⅜-in. to dust), the function of the screen is obviously limited to reducing the load on the crusher through by-passing properly sized clinker. It will be used in the future, however, for producing two sizes of material if the market requires it. The finished product from the screen drops onto an 18-in. inclined belt conveyor which discharges directly into railroad cars. No crushed material is stockpiled, since it takes only 45 minutes to an hour to crush a 70-cu. yd. carload. All shipments are by rail.

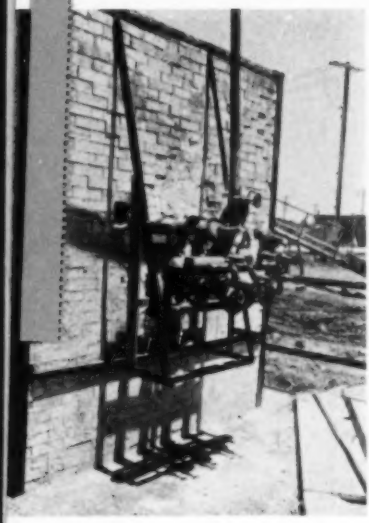
Most of the output is being used by concrete masonry unit producers in the Austin-San Antonio area, although shipments are made to points as far away as Waco (160 miles) and Corpus Christi (140 miles). The average shipment of Nacolite weighs about 1325 lbs. per cu. yd. This is about 100 lbs. per cu. yd. greater than the dry, loose weight because some water is added at the crusher to hold down the dust. A standard 8- by 8- by 16-in. concrete masonry unit made with the material weighs about 22 lbs.

Officers of the National Aggregate Corp. are Lee Hubby, president; Coleman Gay, vice-president; Henry Brooks, secretary; and Bill Williams, general manager. The company employs nine men in its three-shift operations.

Superlite Aggregate Company

Initial experimental runs, involving a relatively small kiln, were in progress at the Superlite Aggregate Company's plant located at Ranger when we called there. A larger kiln, however, had just been delivered, and it seems probable that the company will shortly be in production with two kilns. Ranger, by the way, is located almost midway between Strawn and Eastland, which are themselves only about 25





• Above, left: A view from the discharge ends of the two kilns at National Aggregate Corporation's plant at Converse. Clinker drops into the pit in the foreground. The storage pile of raw shale and the conveyors which feed the kilns are visible in the background.

• Above, right: Bill Williams, general manager of the National Aggregate Corporation.

• Left: A closeup of the firing end of one of the Converse kilns, showing the arrangement of the six burners.

• Right: Clinker at Converse is handled from the pit to the storage pile and from the storage pile to grinding circuit with this mobile crane.

miles apart. This is particularly remarkable in Texas, where even filling stations are likely to be far more than 15 miles apart.

The company owns 14 acres of shale deposit and has a lease on 166 acres adjoining its own property. Overburden (about 3 ft.) is stripped with a bulldozer, and the material is then loaded into a dump truck with a power shovel. No drilling and blasting are required. It is the plan eventually to eliminate the truck haul (now only about 400 ft.) by installing field conveyors from the pit to the burning plant. Covered raw storage bins (150 cu. yds. for the small kiln and 300 cu. yds. for the larger one) have been provided to assure continuous operation.

A 24- by 24-in. Eagle spiked-tooth roll crusher is used to presize the raw shale to minus 1 in. When the second kiln goes into production, this feed will be split at ½ in., and the coarse fraction will be fed to the longer kiln.

The present 4- by 40-ft. kiln was built at the plant from five boiler shells. The second kiln, measuring 6- by 110-ft., will be a combination of two 60-ft. kilns obtained from the dismantled Wolverine cement plant. The kiln now in service is lined with fire brick throughout—6 in. curved kiln block for half the length, and 4-in. firebrick, quartered with 9-in. brick on end to form lifters, for the remainder. The pitch is 1⅛-in. per foot, this higher-than-usual slope reflecting the owner's belief that better fuel efficiency is possible with the slower turning thus permitted; i.e., that the material is moved out of the high temperature area less frequently by the rotation of the kiln.

• An inclined belt conveyor from the screen loads a 70-cu. yd. car of Nacolite in 45 minutes to an hour.

• Nacolite aggregate is ground in this 24- by 16-in. roll crusher, in closed circuit with the 4- by 8-ft. double-deck vibrating screen visible above.

This kiln rotates at 45 revolutions per hour.

Firing is done with natural gas, using two 4-in. burners. The center burner is directed at the bottom of the kiln about 4½ ft. from the end, functioning in this position as a preheater. Below it and parallel to the axis of the kiln is the calcining burner. Maximum temperatures run from 2000 to 2100 deg. F.

The hot clinker is reclaimed by clamshell from the kiln discharge pit and placed in a storage pile for cooling. The same clamshell, without shifting position, also transfers the clinker from the storage pile to a 50-cu. yd. bin which feeds a 7-ft.-diameter dry pan that has been converted into a rim grinder. The product is sized on a 4- by 12-ft. triple-deck vibrating screen in closed circuit with the grinder. Two belt conveyors under the screen take coarse and fine materials separately to two 200-cu. yd. storage bins which straddle the plant siding. The coarse fraction is ½- to 3/16-in. and the fine 3/16-in. to dust. A third size for structural use (1¼- to ½-in.) is now stored on the ground, but a separate bin and conveyor is planned for handling this material.

The small kiln at Ranger had been in production for only a few days when we stopped there. Output had averaged around 40 cu. yds. per day. Production of the 6- by 110-ft. kiln now under construction is expected to run 150 cu. yds. or more per day, bringing the total close to 200 cu. yds. The fine, medium and structural materials weigh 1600 lbs., 1400 lbs. and 1250 lbs. per cu. yd. respectively.

The Superlite company is owned by Charles W. Kline, who played an important role in designing and building one of the first producing plants in Texas. His son, Charles A. Kline, a graduate engineer, is also active in the business.

Herculite Corporation

The newest factor in the Texas expanded clay-shale industry is the Herculite Corporation, located at Rosenberg, about 30 miles southwest of Houston. This company started last June to process material from a sedimentary deposit of low-alumina clay. The material contains almost 61 percent silica, about 24 percent alumina, traces of iron and calcium, and shows an ignition loss of 13 to 14 percent. There is no overburden to remove.

The clay is recovered with a 7½-cu. yd. Miller scraper drawn by a 60-hp. Cletrac tractor. Normally the scraper is set to cut to a depth of about ¾ of an inch, but it can be adjusted quickly to greater depths. The scraper dumps the material hydraulically inside a 60- by 100-ft. storage shed which has a capacity of 1000 to 1200 cu. yds. From there it is reclaimed with a Tracto Loader and dumped into the the supply hopper for a Pioneer feeder.

Here the process departs somewhat from general practice in that the clay passes through a rotary dryer before it reaches the kilns. The 6- by 60-ft. dryer is gas fired with a single burner, using a relatively short, hot flame. It is lined with fire brick for only 30 ft. of its length, and it has 30 ft. of lifters. The maximum temperature is about 600 deg. F.

The material drops from the dryer onto a drag conveyor which passes over grizzly bars spaced at ¾ of an inch. These serve to bypass fines around an 18- by 12-in. Jeffrey Flexroll crusher. The two streams

• At the Superlite Aggregate Company's facilities at Ranger, shale is fed to the plant by truck at present, but the company plans to use field conveyors in the future.

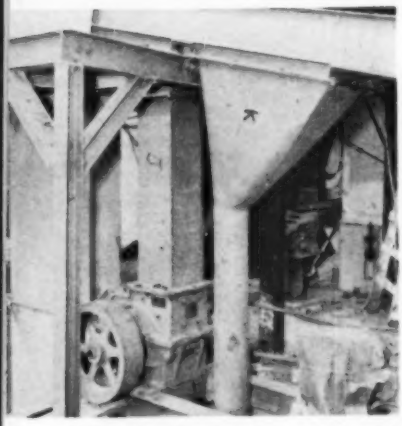
• Charles W. Kline, owner of Superlite, and his son, Charles A. Kline.

• Left: The inclined belt conveyor which feeds shale from the storage bin to the kiln at Ranger.

• Right: The firing end of the Superlite kilns. The upper burner serves to preheat the material; the lower one does the calcining.

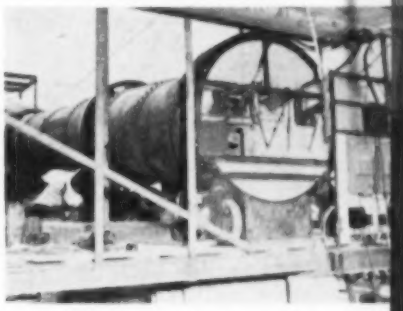
• Below, left: The 7½-cu. yd. rotary scraper being hauled into the clay storage shed at the Herculite plant at Rosenberg.

• Below, right: A tractor-loader is used for trimming the storage piles and for feeding clay to the Herculite rotary dryer.



• Left: Oversize clay from the dryer at Rosenberg is reduced in this roll crusher.
• A. L. Harle, Herculite plant superintendent, and T. W. Mims, plant engineer.

• Below: One of the two 6- by 52-ft. rotary kilns at the Herculite plant. Three burners are used.



are brought together on the discharge side of the crusher, elevated, and discharged over a splitter which divides the flow between the two 40-cu. yd. bins ahead of the kilns.

Jeffrey-Traylor Type 3 vibrating feeders take the sized material from the bins into bucket elevators which discharge into the two 6- by 52-ft. all-welded rotary kilns. The kilns are lined with 6-in. fire brick for their entire length, and there are no lifters. They are pitched 1 in. per foot and are driven at a maximum speed of 60 revolutions per hour by 40-hp. variable-speed motors. Natural gas is used for fuel. Experiments with a 3-burner arrangement indicate that the material can be expanded satisfactorily at a maximum temperature of about 1900 deg. F.

Drag Conveyors take the hot clinker from the kilns to a bucket elevator which discharges into a Jeffrey hammermill. The material is then elevated to a 4- by 6-ft. double-deck Pioneer vibrating screen located directly above a two-com-

(*Continued on page 84*)

Industrial

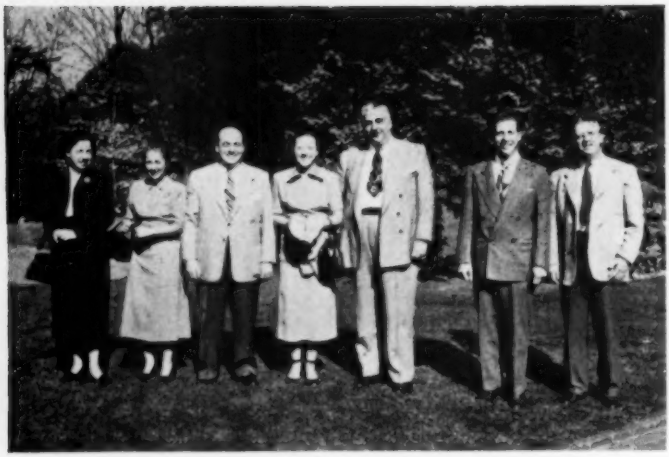
By WILLIAM M. AVERY

another ON THE SPOT report

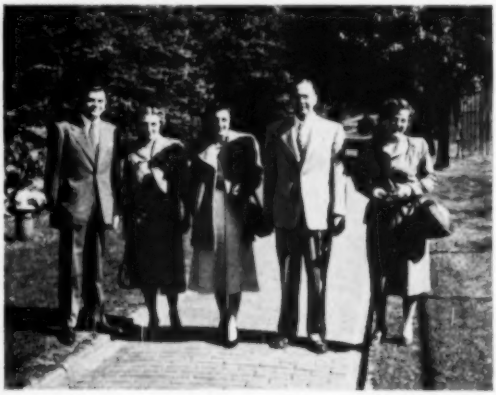
MEMBERS of the National Industrial Sand Association met at the Greenbrier, White Sulphur Springs, W. Va., on October 19, 20 and 21 for informal discussions of engineering and legal problems affecting their industry. Favored by fine autumn weather, and a program which humanely limits business discussions to the morning hours, those who attended the Fall gathering had every opportunity to enjoy The Greenbrier's justly renowned recreational facilities.

As participants in the activities of N.I.S.A. well know, the semi-annual meetings of the organization are somewhat unique in that they consist of a series of connected discussions which carry over from one meeting to the next. Thus, most of the discussions at The Greenbrier were designed to bring the members up to date with regard to a number of matters which were covered at a meeting held at The Homestead earlier in the year. The only guest speaker at the recent 3-day session was John J. Fitzpatrick, chairman of the Eastern Railroad's Traffic Executive Association, who talked briefly and informally about tariffs.

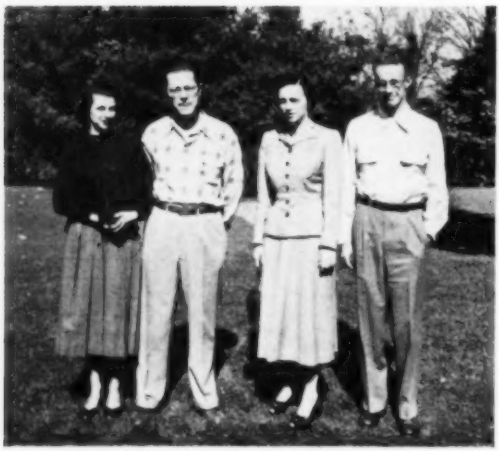
Ground Sand For some time silica sand producers have sought a method of bagging silica flour that would either eliminate the dust problem altogether, or at least reduce it below the hazard level. In reporting for the commit-



• Matchless weather helped to make the Greenbrier meeting an outdoor affair. Here, lined up in the warm autumn sunlight, are Mrs. Marcus S. Wright Jr., and Mr. and Mrs. Arthur B. Schlesinger (New Jersey Pulverizing Co.), Mr. and Mrs. Arnold H. Tanzer (New Jersey Pulverizing Co.), Walter Wright and Marcus S. Wright Jr. (South River Sand Co.).



• Among those for whom the fall meeting marked their first attendance were William J. Woods, Mrs. J. S. Woods, Mrs. William J. Woods, and J. S. Woods of the Pennsylvania Glass Sand Corp. At the extreme right, Miss C. F. Bryant of G. W. Bryant Core Sand, Inc.



• Mr. and Mrs. William H. Paddison (Great Lakes Foundry Sand Co.), and Mr. and Mrs. Forrest S. Pearson (Standard Sand Co.).

• Gene M. Mason (Concrete Materials Co.) and E. M. Durstine (Keener Sand and Clay Co.).

Sand Producers Meet

Hold Informal Discussions Of Legal, Engineering Problems

tee which was appointed several years ago to investigate this matter, Stanton Walker, consulting engineer for the association, reviewed developments up to the present date. He disclosed that a manufacturer of bagging equipment has been giving the problem careful study, and that a machine has already been designed to alleviate the dust problem.

In connection with the dust hazard in bulk loading operations, Mr. Walker expressed the view that this problem must receive careful engineering in each plant. Since the required engineering procedures are well established, the solution of the problem depends mainly on providing an adequate dust collection system. One of the producers present mentioned that a convenient and safe method of bulk loading into box cars is through roof hatches cut into standard cars. It was pointed out that such cars have an advantage over covered hoppers because many small users of silica sand are not equipped with undertrack hoppers. Standard box cars with roof hatches have the further advantage of being entirely suitable for other methods of loading.

Mr. Walker also discussed briefly some of the problems associated with the use of wetting agents to dampen silica sand as a means of controlling dust. The use of a wetting agent, he said, would seem to offer an ideal method if such additives do not affect the performance of the product in the user's plant. He expressed the view that probably the only way to determine the effects of wetting agents was to try them on a production basis.

A possible new market for silica sand was suggested by Mr. Walker in his discussion of the problem of controlling the disintegrating chemical reactions which takes place between free alkalis present in cement and the amorphous or finely-grained silica present in aggregates. Since it is difficult in some areas to manufacture cements which are sufficiently low in alkali, the solution seems to be to add siliceous material to the mix in such form as will react with the alkali while the concrete is still plastic.

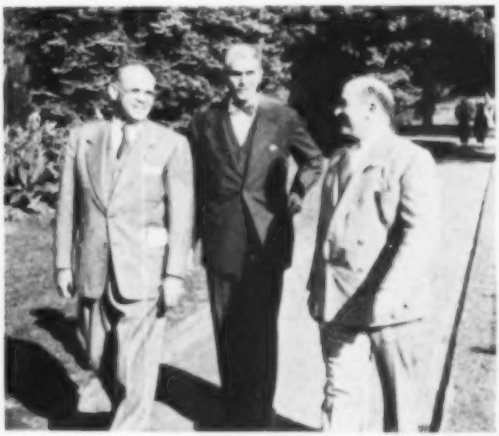
Silica flour, Mr. Walker said, has been tried to some extent, but such large quantities are necessary that the water and cement requirements of the mix are affected. Free silica in the form of glass might be an ideal solution to the problem if it could be produced and marketed at low cost. Such a material, used as an admixture in concrete, would supply readily available silica which would react immediately with the alkalis in the cement, thus preventing the damage which occurs when

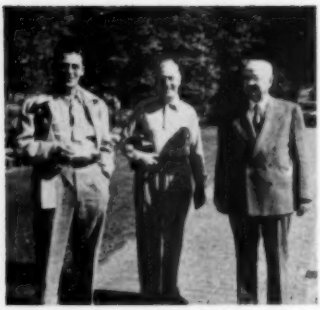
• Mr. and Mrs. E. J. Campbell (Sun Sand Company).

• Another couple who attended for the first time were Mr. and Mrs. F. B. Clarke (Whitehead Brothers Co.).

• Wayne Gyger and George A. Thornton (both of Ottawa Silica Co.) and R. S. Lebold (Michigan Silica Co.).

• Enroute to lunch at the Casino, Mr. and Mrs. A. Warsaw (Wedron Silica Co.) and Ted Waters, association counsel, paused for this picture.





• Jesse T. Morie (Jesse S. Morie & Son), P. W. Palmer (Browntown Silica Co.), and Junius M. Strouss (Deckers Creek Sand Co.).

the reaction takes place in the hardened state.

Compensation Legislation Theodore C. Waters, association president, reported that the general trend in legislation this year has been to increase benefits in workmen's compensation, with a broadening of the scope of the statutes to make compensable any and all injuries which may arise out of and in the course of employment. While this will inevitably tend to increase insurance costs during the coming year, Mr. Waters said, there is no cause for concern with respect to the silica sand industry, which has adopted effective control methods to reduce the incidence of accidental injuries.

In reviewing the association's negotiations with the National Council on Compensation Insurance regarding silicosis rates, Mr. Waters disclosed that the Ratemaking Committee had just advised him of their adoption of the following resolution:

• Mr. and Mrs. Harte Campbell (Sun Sand Company).

"Resolved, that in states where dust diseases are included in a Workmen's Compensation of Occupational Disease Act, the present ratemaking procedure be adjusted to as to provide reductions in existing specific loadings of 15 percent; that the new procedure apply to both escalator and non-escalator states."

Mr. Waters summarized briefly the developments with respect to amendments to Workmen's Compensation Acts that took place in various states this year. The recently enacted "New York Disability Benefits Law" provides benefits in the amount of 50 percent of wages for a period of 13 weeks in any one year, with a weekly maximum benefit of $26 and a minimum of $10.

In New Jersey the Workmen's Compensation Law has been amended to abolish the schedule of compensable occupational diseases and to make all occupational diseases compensable under the statute. The law retains the present provisions applicable to silicosis and asbestosis.

In Pennsylvania weekly benefits were increased from $20 to $25, effective July 1. The limitation of monetary liability was also increased from $4,000 to $5,000 for dust diseases. A proposed amendment to make partial disability compensable for dust diseases was defeated.

The West Virginia law was amended to provide general coverage for occupational diseases, but the stage classification of compensation for silicosis was retained.

In Maryland weekly benefits were increased from $25 to $28. A legislative commission, of which Mr. Waters is a member, is studying further possible amendments to the law, particularly with respect to compensation for occupational diseases.

In Minnesota death benefits were increased from $7,500 to $10,000, and the maximum weekly benefit was increased from $27 to $30. The speaker pointed out that upon enactment of this amendment the Minnesota Compensation Rating Bureau sought a 6 percent increase in compensation insurance rates.

Weekly benefits in Ohio were increased from $25 to $35. Maintenance and subsistence allowances during rehabilitation were increased from $15 to $20 per week for a period of 52 weeks.

In Michigan weekly benefits were increased to $34. The new law applies to companies with four or more employees, as compared with an eight-employee limit under the old act.

Maximum weekly benefits were increased from $28 to $32.55 in Wisconsin. The act as amended enables an employee who ceases employment because of disabling silicosis to recover compensation under the silicosis provisions.

In Tennessee weekly benefits were increased from $20 to $25, and total disability benefits from $6,500 to $7,500. A flat 4.9 increase was made in workmen's compensation insurance rates.

The schedule form of the occupational disease statute in Rhode Island was amended to make all occupational diseases compensable. With the repeal of a separate silicosis statute, compensation is now payable for both partial and total disability.

The Utah occupational disease statute was amended to provide compensation for partial disability from dust diseases. Partial disability is determined by a medical board appointed by an industrial commission.

Contamination of Cars Representatives of several member companies reported instances of serious trouble in customers' plants due to the contamination of silica sand with unexfoliated vermiculite and perlite. The contamination occurs when sand is shipped in cars that have previously been loaded with vermiculite or perlite ores. Very small amounts of either of these ores cause cores and molds to disrupt when the unexfoliated materials expand. Experience indicates that this sort of contamination can occur even when cars are carefully cleaned between loadings.

(*Continued on page* 90)

• Mrs. Junius M. Strouss and Mrs. P. W. Palmer.

Report on Current Labor Developments

another P&Q exclusive

LAST month pension problems overshadowed every other labor development. While they have not diminished, precedence this month must go to the problems resulting from the changes the Congress made in the Wage and Hour law.

That new law goes into full effect very soon—on January 25, 1950.

By S. HERBERT UNTERBERGER
Director of Research
Labor Relations Information Bureau
Washington, D. C.

Before that date every employer will want to know where he stands under it. If his employees are covered by the law, he will, of course, have to observe the new 75-cent-per-hour minimum wage requirement or run the risk of suits for back pay and damages, injunctions, and even criminal prosecutions. He will also want to know in what respects the requirements of the law have been eased.

The first respect in which the law has been relaxed is that some 200,000 employees who used to be covered have been exempted.

Are your employees covered by the new law? An employee was and continues to be covered if he is clearly engaged in interstate commerce or in production of goods for interstate commerce. Generally, an employee who was covered under the old law continues to be covered under the new.

There are important exceptions, however, some of which may have special effect in the pit and quarry industries. It may be remembered that many pit and quarry employers have felt for a long time that they were not engaged in interstate commerce and that, therefore, their employees were not covered by the law. Unfortunately, the Wage and Hour Administrator and even the courts rarely agreed with them.

In a leading case, *Schroeder v. Clifton*, the employees of a quarry were held to be covered by the law. The quarry's relation to interstate commerce was remote, indeed. It delivered rock which it had mined and processed to the contruction site of a dike in the same state as the quarry. The dike would have the effect of preventing an oil field from being flooded. At this point the relationship to interstate commerce arose. The oil would be shipped interstate.

The courts could stretch the law this far because it provided that an employee would be covered by it if he engaged in work which was "necessary" to the production of goods for interstate commerce. The Congress made it very clear that the new law is not to be held applicable to such far-fetched situations. And it cited the Schroeder case specifically as one in which the law is no longer to be held to be applicable.

On the other hand, an employee not directly engaged in producing goods for interstate commerce will still be covered if he is engaged in a closely related process or occupation directly essential to the production of such goods. Thus, clerical workers, maintenance men and custodial employees for interstate commerce are not eliminated. Even though the goods do not actually pass through their hands, they are to be regarded as engaged in a closely related process or occupation directly essential to their production.

This discussion can not go into all the intricacies. As a matter of fact, all the intricacies are not yet known. The Wage and Hour administrator may issue regulations further explaining the subjects. Cases will, no doubt, be brought to the courts where the precise coverage of the law will be further defined.

One thing is clear. Deciding whether all or some of your employees have become exempt is a difficult technical problem. To be safe, expert assistance should be utilized. If your employees are really exempt, there may be much to gain by knowing that; but also much can be lost by a wrong decision.

The new method for computing the "Regular Rate." The other important place where the new law eases up several of the previous rigid requirements is in connection with the calculation of the regular rate of pay. Determining the regular rate is of course, the essential first step in figuring out the required overtime rate of 1½ times the regular rate.

The new law does not change the basic rule laid down by the Supreme Court that the regular rate means the hourly rate actually paid for the ordinary, non-overtime work week. Thus, if for the non-overtime work week, an employee receives wages or piece rates, bonuses, commissions or board and lodging, these (or their value) all must be included in the regular rate. To compute the regular hourly rate, all that is done is to take this total and divide by the number of hours worked.

The situation began to get complicated when questions arose as to whether premiums paid for Saturday, Sunday, holiday or night work were to be included in the regular rate or left out; or whether gifts were to be included in the regular rate; or whether employer payments for group life insurance were to be included in the regular rate; etc.

A start was made toward clarification in an amendment to the Wage and Hour law enacted on July 20 of this year, whereby there could be excluded from the regular rate any premium paid for work on Saturdays, Sundays, holidays, the sixth or seventh day of a work week or work outside the basic, normal, or regular work day or work week, provided that the premium is at least ½ the rate for like work performed in non-overtime hours.

The new law provides further clarification by enumerating additional types of payments which need not be included in the computation of the regular rate.

1. Gifts, but only if the amount of the gift does not depend on hours worked, production, or efficiency.

2. Payments made for occasional periods when no work is performed due to vacation, holiday, illness, failure of the employer to provide sufficient work, or other similar cause.

3. Reasonable payments for travel expenses or other expenses incurred by an employee in the furtherance of his employer's interests and properly reimbursable by the employer.

4. Other payments to an employee which are not made as compensation for his hours of service.

5. Payments made in recognition of services, but only if the payment is determined solely by the employer and not pursuant to any contract, agreement, or promise.

6. Payments made pursuant to a *bona fide* profit sharing plan or trust, or thrift or saving plan, but only to the extent that the amount is not determined by hours of work, production, or efficiency.

7. Payments as talent fees to performers and announcers in radio and television.

8. Contributions irrevocably made to a trustee or third person pursuant to a *bona fide* plan for providing

(*Continued on page* 90)

Successful Lime Operating Meeting Held at Toledo

By WALTER E. TRAUFFER

another ON THE SPOT report

THE Operating Division of the National Lime Association held its annual Operating Meeting at the Commodore Perry Hotel, Toledo, O., on October 20, 21 and 22, 1949. This was one of the best meetings yet held, the program being well rounded and covering a multitude of production and control problems. The attendance was excellent, totaling 70, including 60 representatives of member companies from all parts of the United States and Canada, the others being members of the association's staff, representatives of the press, and guests.

Among the guests were three men important in the lime industry in England: Dr. N. V. S. Knibbs, consulting engineer and outstanding lime authority and author; C. F. Priest, Priest Furnaces, Ltd., manufacturer, among other items, of the Priest mixed feed vertical kiln, noted for its high capacity and low fuel consumption; E. G. S. Thyer, Riddlesdown Lime Company, Ltd., producer of lime using the Priest kiln.

• C. L. Morris, Ash Grove Lime & Portland Cement Co.; Fred Witmer, Ohio Hydrate & Supply Co.; A. K. Frolich, Ash Grove Lime & Portland Cement Co.; E. D. Williams, H. E. Millard Lime & Stone Co.; Fred Warner, The Warner Co.; E. D. Williams Jr., H. E. Millard Lime & Stone Co.; A. H. Niemen, Ohio Hydrate & Supply Co.; N. C. Rockwood, Rock Products.

Plant Inspection Trip

A feature of the meeting was the plant inspection trip on the first day which was blessed with ideal summery weather. Chartered busses took the entire group first to the White Rock Plant of the Kelley Island Lime and Transport Company at Clay Center, O. The items of particular interest there were the quarry, which had recently been converted from railroad haulage to the use of 8-ton Koehring Dumptors; the new vertical kiln plant featuring center burners, the latest type of Wellman gas producer and Syntron vibrating draw feeders; and the Corson pressure hydrator, which makes the famous Miracle finishing lime. (See the article elsewhere in this issue, which is the first complete description of this equipment and its method of operation.)

At noon all enjoyed an excellent luncheon at the Chippewa Country Club as guests of the lime companies of northwestern Ohio. After lunch the first stop was at the plant of the Ohio Hydrate & Supply Company, Woodville, O. The chief features of interest there were the quarry, which uses Euclid diesel truck transportation; the improved primary and secondary crushing departments; and the plant. The visitors were also privileged to see a delayed-action blast in the quarry which was carried off very successfully.

The third plant visited was that of the National Mortar & Supply Company at Gibsonburg, O. The features of special interest there were the modern CO_2 and gas producer installations; the large bulk storage; and the vacuum cleaning system, in process of installation, which makes this plant one of the cleanest in the industry.

• Michael Brisch, Rockwell Lime Co.; C. J. Myers, Mississippi Lime Co.; K. W. Waugh, National Gypsum Co.; L. A. Curtis, Dow Chemical Co.; Kent Jander, National Lime Assn.; F. C. Mallery, National Gypsum Co.; W. E. Trauffer, Pit and Quarry.

Employer-Employee Relations

That Guy Who Works for You was the subject of an excellent paper by Frank R. Cadman, personnel manager of the Warner Company, Philadelphia, Pa. He pointed out that one of the most important things about running a business is getting along with the employees and that the practical psychology required to do this is nothing but good horse sense. Mr. Cadman said that the industrial revolution during the past century has made specialists out of craftsmen and that machines are now getting more attention than the men who run them. He pointed out that years ago employees, many of them

• Robert S. Boynton, National Lime Assn., and Wallace E. Wing, Marblehead Lime Company.

immigrants, came to industry unused to privileges, but their sons now come with an entirely different background. They are not only better educated but they are also subject to a tremendous amount of propaganda from the radio, movies, etc., and they are members of organized groups to which they owe allegiance. They all have pride and the desire to get ahead, but each is still an individual and must be treated as such in order to get him to do his best.

The typical employee today, said Mr. Cadman, wants: job security and the chance for advancement; he expects to be treated like a person; he has a feeling of dignity and responsibility; and he likes to know that his work is appreciated. A squirt of oil now and then makes a machine work better, and the same is true of employees. The worker, Mr. Cadman stated, wants all that he can get, particularly does he want as much as anyone else doing the same work; and his income largely determines his status in his community. According to Mr. Cadman, fairness in an employer compensates for many other faults.

A personnel manager, said Mr. Cadman, must have the ability to get others to work for and with him, and all other company officials must help by taking the same attitude toward the employees. The foreman is especially important as he is management at the job level; and he can wreck all other employer-employee relation efforts. In order to do his job properly the foreman must feel secure, have authority, be consulted on problems, be in the know, be fairly treated, and have the respect of his men. He should never be bypassed, as a foreman who only carries out orders from the higherups loses his initiative and his self respect as well as that of his men.

Mr. Cadman pointed out that improvements in efficiency of operation help to insure workmen's jobs, and they should be made aware of that fact. He also stated that when workmen are used during off seasons to do maintenance and repair work, this gives them year-round work, but that necessary agreements must be made with their unions. Pensions, he said, are a form of security, and they will confront all employers before long.

Discussion The remainder of the Friday morning session was devoted to the discussion of various phases of the employer-employee relations problem and was led by L. N. Carmouche (Dow Chemical Company). On the subject of the first impressions of a new worker coming into a plant, J. E. Jackson (Marblehead Lime Company) said that a new employee is first taken around the plant. Some of the disadvantages are explained to him, such as dust, heat, etc., to prevent future disillusionment. Company policies and his job are then explained, after which he is introduced around.

• C. J. Myers, Mississippi Lime Company, and L. N. Carmouche, Dow Chemical Company.

According to J. H. Robinson (Gypsum, Lime & Alabastine, Canada, Ltd.), jobs are now scarcer than they were a year ago, and employers can be more selective. The older employees are asked to recommend and talk to prospects, as this gives them a better picture of the job and they do not come in "cold" and strangers. R. S. Adams, of the same company, said that new men are usually started in on the bull gang and advanced to better jobs as they are needed and as they deserve.

Keith W. Waugh (National Gypsum Company) stated that foremen and superintendents are given a list of things to do in breaking in a new man, such as taking him through the plant, introducing him around, etc. They are required to turn in this list fully checked off. Much time is spent in instructing foremen on their duties, procedures, etc.

Fred Warner (Warner Company) pointed out that an effective means of getting closer to the workers was through regular monthly foremen's dinner meetings which are held from October through April. Smaller

• Left, below: L. H. Niems, Marblehead Lime Co.; Fred Warner, The Warner Co.; J. E. Jackson and C. W. McElheny, both of the Marblehead Lime Co.
Right, below: R. G. Foster, Winnipeg Fuel & Supply Co.; T. R. Ellerbeck, Utah Lime & Stone Co.; A. B. Mack and R. L. Dickey, both of the Kelley Island Lime & Transport Co.

• Left: F. S. White, New England Lime Co.; Irving Warner and A. C. Hewitt, The Warner Co.; William Barrett, New England Lime Co.
• Right: H. L. Woodland and J. G. Wilson, The Warner Co.; F. D. Witmer Jr., Ohio Hydrate & Supply Co.; K. W. Waugh, National Gypsum Co.

group operating meetings are also held at intervals.

According to F. S. White of the New England Lime Company, this company has been making lime since 1865 and the employees grew up in the lime business, many of them having 40 to 50 years' service. These men all know their jobs very thoroughly and need little supervision. New men are supervised more carefully and are advanced as they deserve it.

The training of foremen was also discussed. Mr. Robinson emphasized the importance of foremen's meetings which make them feel that they are part of management and in the know. Mr. Carmouche said that at his plant two types of meetings are held: one to instruct the foremen and the other to hear their views and to discuss their problems. According to C. W. McElheny (Marblehead Lime Company), working foremen and supervisory foremen need different types of training. With only three foremen in his plant, he sees them many times daily, singly and together and no special meetings are required.

The transfer of information from employer to employee and *vice versa* was also discussed. Bolton L. Corson (G. & W. H. Corson, Inc.) stated that regular foremen's meetings and dinners help to keep them close together, and that an outside consultant is also employed to help in promoting good relations with foremen and other employees. Inspiring loyalty in employees is important, he pointed out, and the companies are now in competition with the unions for the workers' loyalty. Mr. Waugh said that foremen must be convinced of the advantages of the American way of life before they can sell the workers on it. Foremen can talk to the men much more easily and better and they know who needs to be talked to; so they must be depended on to put the story across. Mr. Carmouche said that the top men, as well as others, should keep in personal contact with their men. He said that if they don't know you, believe in you and like you, nothing you can tell them will sink in, even if transmitted through the foremen. You must bowl with them, go to their parties, etc., and convince them of your sincerity. The workers must be taken into your confidence before plant or personnel changes are made, said Mr. Carmouche, otherwise they will suspect your motives. Just tell them, however; don't ask their opinions. Several companies which follow these practices, he said, have had no serious grievances for years.

The discussion of employee recreation brought out the fact that many of the lime companies provide for such activities as baseball, bowling, picnics, etc., not only for the employees and their families, but in some cases also for the town in which the plant is located.

Packing and Shipping

The first item on the Friday afternoon program was a paper on *Packing and Shipping* by A. H. Nieman (Ohio Hydrate & Supply Company), illustrated with slides and movies. The results of a questionnaire showed that much damage to bags in shipment was caused by poor car condition, humping of cars in transit, etc. Most cars have to be papered ends and sides, sometimes double. Most producers use double 50-lb. paper bags but their sizes and the sizes of valve openings vary widely. The uniform weight of each bag, said Mr. Nieman, is important to the shipper because it prevents waste of material and makes better satisfied customers. Consumers, especially in the chemical industries, depend on the bag weights, and variations throw off their batches. He said that bag weights should be checked regularly and that sometimes the bagger unconsciously weighs his hand. The packer should be looked over occasionally. A clean bag impresses the buyer. The questionnaire showed that producers feel that a 4-tube bagger results in a cleaner bag than a 3-tube machine because the lime can settle longer, and less squirts out when it is handled. It was also found that the best output per man was obtained when three men were assigned to two machines. Producers who pay bonuses are getting up to 50 tons per man per day. Mr. Nieman also described the various arrangements of bags in cars to allow for variations in bag size and in the widths of the cars.

Mr. McElheny then showed some slides and told of the importance of correct placing of the truck at the packer, the way the hand holds the valve shut, and how the knee boosts the bag onto the truck. The cars should be lower than the platform. Arthur C. Hewitt (Warner Company) showed views of pulverized and pebble lime sacking and box and bulk car loading. His company uses flat bed trucks with ball bearing wheels.

F. C. Mallery (National Gypsum Company) led the discussions which followed this report. Mr. Corson said that lime can be loaded about half as fast as agstone. He described his company's new packing plant, which features a wire screen conveyor mounted on springs to absorb shock. Mr. Warner stated that questionnaire results showed that most producers prefer crosswise rather than lengthwise loading of bags in cars and that tightness of loading is vital.

Burton A. Ford (St. Regis Paper Company) emphasized the importance of keeping the right amount

(7 percent) of moisure in the bags. The double 50-lb. bag, he said, is amply strong if properly cared for and handled. He cautioned that bags should be kept from freezing and that they should be stored in a room where the humidity is near 50 percent but not high enough to wet the bags.

European Lime Problems At the association dinner on Friday night Arthur C. Hewitt (Warner Company) introduced Dr. N. V. S. Knibbs, consulting engineer of London, who spoke on *European Lime Problems*. In Europe, said Dr. Knibbs, the lime industry has changed from wood to gas firing, but England has continued to use bituminous coal. The Limehouse section of London was once a major lime-producing area. Mixed feed kilns are still popular, and the coal and rock must be evenly distributed in them as in charging a blast furnace. Mixing the materials before charging causes segregation. These kilns, he said, can burn any size of stone and they require from four to five million B.T.U.'s per ton.

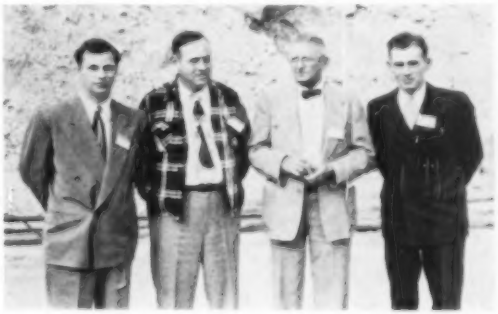
Dr. Knibbs then described the improved Priest kiln which has capacities as high as 170 tons daily. This kiln is 6 by 12 ft. in interior cross-section and burns coke breeze. Two feeder buckets are used, one to feed coke and the other stone. If a 99 percent calcium stone is used, the lime obtained is about 97 percent calcium. The ashes are screened out of the lime after drawing and the 5 percent of the total material screened out is sold at a lower price. Mr. Thyer, who operates one of these kilns, said that he expects to get an output of one long ton per square foot of cross section. The kiln has an automatic continuous draw.

Lime Plant Round Table Following the dinner and talk the annual lime plant round table was held, with T. R. Ellerbeck (Utah Lime & Stone Company), presiding. The panel of experts included the following: C. B. Geiger (Marble Cliff Quarries Company); C. L. Morris (Ash Grove Lime & Portland Cement Company); L. H. Niems (Marblehead Lime Company); L. E. Smith (Kelley Island Lime & Transport Company); C. Stielstra (Dow Chemical Company); K. W. Waugh (National Gypsum Company). A set list of questions selected by popular vote of members brought out many interesting facts. One expert said that his company is having success with carboloy percussion bits by splicing short lengths of the round steel together. Another told of the successful use of 9-in. well drill holes, using 20- by 20-ft. spacing instead of the 12- by 15-ft. with smaller drills, on a 50-ft. face. This resulted in better yield and just as good breakage with no increase in the secondary blasting. On the subject of delay blasting several said that they were getting excellent results with milli-second delays, both in open quarries and in mines. One said it results in reduced toes and secondary shooting.

It was brought out that, for large crushers, a 10-ton hook crane with a 10-f.p.m. hoisting speed is adequate for dislodging rock. Another told of designing a hook with a long handle in the back near the bottom. The operator can handle the hook with one hand and the hoist controls with the other.

In discussing burning in a rotary kiln one operator said that he is equipped to burn any mixture from 100 percent coal to 100 percent gas and that, using about 25 percent coal, little ring formation occurs. Another quoted similar results on the use of from 10 to 20 percent coal. With ¾- to 1½-in. stone and 19½ percent coal, a fuel consumption of 10,600,000 B.t.u.'s was obtained. With 23 percent coal, B.t.u. consumption went down to 9,000,000. Only one ring built up during the entire summer.

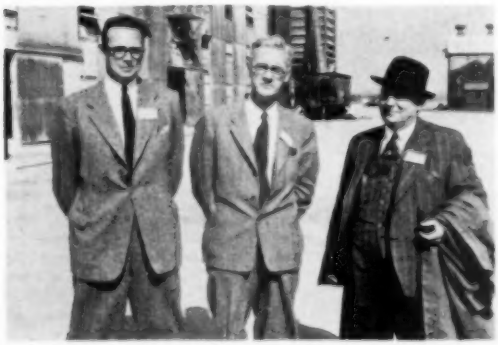
An operator burning oyster shells in long rotary kilns with nearly pure methane gas as fuel said that two



• Right: Charles E. Rarey, J. O. Leonard, R. W. Bowen, and Chester Brown, all of the Marble Cliff Quarries Company.

• Left, below: E. G. S. Thyer, Riddlesdown Lime Co., Ltd.; N. V. S. Knibbs, consulting engineer, London, England; C. F. Priest, Priest Furnaces, Ltd.

• Right, below: Michael Brisch, Rockwell Lime Company; Bolton L. Corson, G. & W. H. Corson, Inc.; T. R. Ellerbeck, Utah Lime & Stone Company.



types of rings form, one near the firing end and the other near the burning zone, but that kilns have been operated as long as 13 months without being shut down. The gas consumption varies between 9 and 11 million B.t.u.'s, but this is expected to drop to about 7 million with the installation of heat exchangers.

On the removal of rings, one operator reported shooting every two to four weeks. Another, burning oyster shell, said that at his plant they never shoot but pour on the gas, shut it off, and repeat until the ring cracks off. If done properly, he said, this practice will not damage the lining. One company was reported to have tried recycling CO_2 gas to eliminate rings, but this lowered the efficiency too much.

It was agreed that it is impractical to feed crusher run stone to a rotary kiln because of segregation and the high percentage of fire spall of the larger pieces. One operator uses stone up to 2½-in. but burns four different sizes separately. Another gets best results by combining about 35 percent of ⅜- to ⅝-in. with 1½-in. stone.

The application, economy and efficiency of the Fuller-Huron "Air slide" conveyor was also discussed. One operator told of using it successfully for both lime and pulverized limestone. He emphasized the low power consumption and the fact that types are available for conveying both hot and cold materials.

Quality Control Round Table The final meeting Saturday morning was a quality control round table with Frank S. White (New England Lime Company) presiding. The panel of experts included the following: William Barrett (New England Lime Company); A. H. Nieman (Ohio Hydrate & Supply Company); J. H. Robinson (Gypsum, Lime & Alabastine, Canada, Ltd.); Edward Tanski (Marblehead Lime Company); Robert K. Thomas (Warner Company). In discussing sampling, one operator said that at his plant tests never checked within 1 percent of those of the purchasers until an automatic sampler was installed at the loading chute. Now tests are always within 1 percent on available lime.

On the subject of routine quality control of hydrate, several operators agreed that tests of available lime and fineness are usually sufficient, but that if these were off, further tests should be made. A producer of finishing lime tests plasticity, free moisture, fineness, and combined water of hydration; and if these are not up to standard, the lime is sold for agricultural purposes. On quicklime, one expert tests available CO_2 and uses the complete A.S.T.M. standard procedure. One large operator told of the use of spectrographic analysis two or three times per hour for either complete or partial analyses. This apparatus is especially accurate for trace elements.

One producer engenders quality consciousness in the plant personnel by having copies of complaints on quality go to the general superintendent, the sales manager and the managing director of the company. Such reports, and those praising the quality are shown to the men in the plants, with good results. Another expert has a night man who takes a sample from the kiln every hour and slakes it. He finds that the workers take an interest in the results of the tests, and the fact that these samples also go to the main office has a psychological effect.

The experts preferred machine to hand screening of samples, because as one put it, a machine doesn't get tired. Some use screens for all types of material except quicklime because at times there is considerable static electricity. One did both wet and dry screening, and it seems agreed that screening is accurate down to 100- or 120-mesh.

One large operator said that in controlling rotary kilns a thermocouple is placed alongside the end of the burner pipe and the combination reading obtained is used as a guide by the burner. This reading also helps to train the eye of a new man, who in time gets familiar with things in the kiln which will guide him in burning. This expert does not recommend having more than four readings in one recorder nor more than one kiln. He also believes that instruments should be easy to read, even from a distance. Another expert told of the use of a portable temperature recorder about every two weeks to check conditions in vertical kilns as the average man loses his color sense about every 30 days and needs this control to regain it.

Plant Suggestion Contest A new feature at this meeting which met with much favorable comment was a plant suggestion contest with cash prizes for the winners. The winner of first prize was Lea P. Warner Jr. (Warner Company) for an air brush holder to speed up the job of scraping the bottom of barges. Second prize went to Fred C. Mallery (National Gypsum Company) for a method of increasing the output of a Bonnot mill by using a Ty-Rod slotted screen in place of the usual 30-mesh cloth. The third prize winner was R. H. Dinges (Warner Company), who made a layout of his company's Bellefonte yard to facilitate and systematize the spotting of siutable cars at the right places. Fourth prize went to T. R. Ellerbeck for a suggestion which will be published in an early issue of *Explosives Engineer*, and later reprinted in PIT AND QUARRY.

Expanded Clay-Shale Aggregate

(*From page* 75)

partment 100-cu. yd. bin in which the sized material is stored. The screen is in closed circuit with the hammermill so that oversize material is returned constantly. There is a drag conveyor which removes finished material to an open storage pile whenever the bins are full. Since all but a very small part of the output of the plant will be shipped by rail, the bins straddle a railroad siding.

Early indications are that the two kilns, when operating normally, will produce 400 cu. yds. of expanded aggregate per 24-hr. day. While this seems materially higher than the output of other kilns of approximately the same size, the comparison is misleading because of the use of a dryer in the circuit. Even judging the output on the basis of three kilns, however, a showing of 400 cu. yds. per day would be excellent. The finished aggregate weighs from 1080 to 1620 lbs. per cu. yd., depending on the percentage of coarse material included.

Officers of the Herculite Corp. are Cedric Willson and Louis Mims. T. W. Mims is plant engineer and A. T. Harle is superintendent. O. W. Bartholomew of Houston acted as consulting engineer on the design and construction of the plant. About 25 men are employed in the three-shift operations.

British Cement Best Export At World's Lowest Price

According to the *New York Journal of Commerce*, cement is probably the most consistently profitable of all British exports at present. As might be expected, the price of British cement is the lowest in the world, apparently barely covering the cost of production.

Whereas cement per ton delivered in London costs 70 shillings, the New York price is 12ls 7d. Despite this record low, it is reported that the price will soon go even lower.

The Corson Explosion Method Of Continuous Pressure Lime Hydration

ONE of the most important developments ever to take place in the lime industry is the Corson Explosion Method of continuous pressure hydration by means of which dolomitic lime is not only thoroughly hydrated but also given high instantaneous plasticity and other superior qualities. The basic features of the Corson process are the special hydrator with its "explosive" discharge and the treatment after hydration by tube milling.

This process in a few hours makes a finishing lime which far surpasses in soundness, plasticity and strength even the fabulous limes produced in ancient Roman days. In those days of Roman ascendancy in art, war and the sciences, sculptors required a lime far above ordinary quality. This they obtained by putting quicklime into vats in cellars, leaving it there to soak for many years. These vats were handed down from generation to generation.

In the early days in this country somewhat the same procedure was followed but for much shorter periods, up to about a year. As the tempo of living and building speeded up, lime was slaked for shorter and shorter periods before it was used. Now it is unusual to slake lime more than one or two days, and overnight is more common. The resulting product has not helped to increase the popularity of lime for various construction uses.

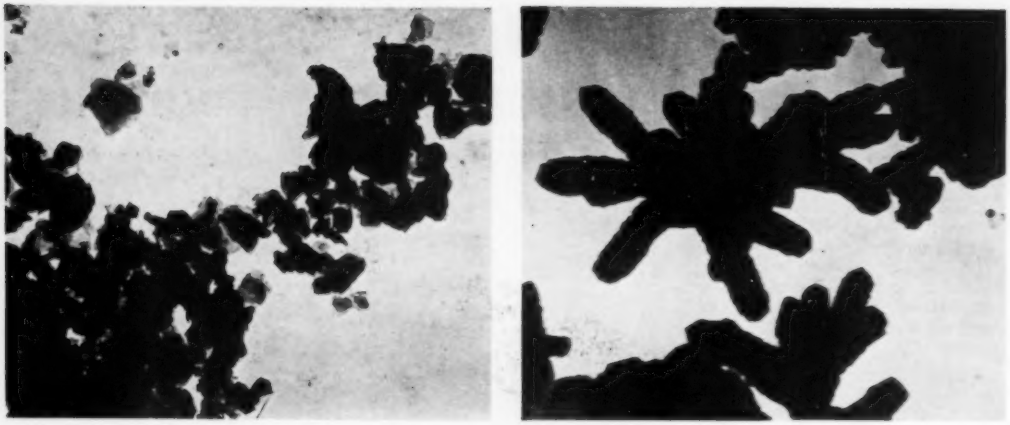
The firm of G. & W. H. Corson, Inc., of Plymouth Meeting, Pa., is one of the pioneer lime producers in this country, having been established in 1822. It was one of the first to produce lime hydrated in the plant to relieve the user of the necessity of slaking quicklime on the job. In 1898 this firm started to bag hydrated lime, it is believed for the first time anywhere. In many other ways this company has been among the first to adopt new and improved methods and equipment.

The story of the development of the Corson method of pressure hydration began in the early 1930's when Bolton L. Corson, inventor of the process, began to delve into the possibility of turning out a better hydrated lime. He came to the conclusion that two conditions were essential to the proper hydration of lime. One was that water in the liquid phase be present at the time the calcium oxide changed to calcium hydroxide, and second that it be done under pressure. Experiments were made in which a large excess of water was supplied to the ground quicklime, and then the lime was placed in a pressure vessel. In the early tests it was found that after the pressure had returned to atmospheric the material in the chamber had very superior properties but was wet. It then became necessary to find a way of drying the product without ruining its properties. Experiments then showed that by suddenly opening a valve to atmospheric pressure the water could be made to separate from the lime and that the lime maintained substantially the same characteristics in the dry form which it had when wet. In other words, this drying operation, under the impetus of the pressure and heat developed by the lime itself, became an ideal method for removing the moisture and thus produced an absolutely unique product on an economical basis.

• The plant of G. & W. H. Corson, Inc., at Plymouth Meeting, Pa., in which "Miracle" lime is produced.

The first test models of the Corson pressure hydrator were built in 1937. In the winter of 1938-39 the first full-scale units, which were of the batch type, were built and the lime placed on the market in quantity. This lime received immediate recognition by the building industry as a very superior product. Work was immediately started on the development of a continuous process, which was placed in operation during the year 1940 and a larger unit in 1943. The product made by the continuous process was in no way superior to that produced by the batch process; however, the cost of production was greatly reduced. In 1948 a still larger and improved hydrator was installed at the Corson plant, and the process, thoroughly protected by patents in the United States and foreign countries, was made available to other producers. Several units have already been installed and others are in process of installation in all parts of this country and in one foreign country.

The Corson explosion method of continuous pressure hydration can be briefly described as a process whereby quicklime is automatically fed at constant weight to a mixer, in which the proper amount of water is added. The quicklime used in the Corson plant is a hammermill product, not very finely pulverized. A special pump was developed to feed the resulting slurry into a 7-ft.-dia. by 20-ft. pressure cylinder operating at 75 lbs. pressure and a temperature of 300 deg. F. In the cylinder hydration takes place under mechanical agitation for about 30 minutes, and the product is continuously discharged (or exploded) through a small pipe, at the rate of 10,000 ft. per second, into a special cyclone type collector at atmospheric pressure. In this explosion process the finely divided lime —average particle size 2/5 micron— is separated from the water by the spray drying principle. The lime falls to the bottom of the collector and is then fed to a tube mill, not to grind it finer but to agglomerate it, thereby increasing its plasticity. The lime is discharged from the tube mill to an air separating system



• Photographs taken with the electron microscope which show the difference in size and structure between "Miracle" lime (left) and the same lime hydrated by ordinary methods (right).

or to a screen for the removal of core, etc. The finished product is then bagged in the usual manner.

Tests comparing the same quicklime hydrated by the Corson process and by an ordinary process show that the strength of the Corson processed lime at the end of one year is approximately four times that of the regular lime when 24-in. cubes were tested sanded 3 to 1. The compressive strength at the end of the year is approximately 1000 lbs. p.s.i. In the early periods the strength of both limes is approximately the same.

Using the Emley plasticimeter, the "Miracle" lime showed a plasticity of 325 both immediately and after 24 hours. The ordinary hydrate had a plasticity of only 110 at the same periods.

Tests made with the Voss extrusion energy machine showed that the sand carrying capacity of the "Miracle" lime was 5¼ to 1, as compared with 2¾ to 1 for the ordinary hydrate.

The particle size of "Miracle" lime, due to its having been exploded from the pressure hydrator, is only 2/5 micron, as compared with 6 microns for the ordinary hydrate. This fineness gives "Miracle" lime not only greater plasticity and bonding power but even greater waterproofness than is obtained from ordinary lime. Its soundness is greater (less than 8 percent unhydrated oxides) because there is much less unhydrated material and its color is whiter than that of ordinary hydrate. Its colloidal structure makes it unusually adhesive.

Typical chemical and composition analyses of the same quicklime processed by the Corson pressure hydrator and by ordinary process follow:

Corson Process	Chemical Analysis		
Ultimate	SiO_2	1.2	Insol. 1.7
	R_2O_3	0.5	
	CO_2	0.7	Ign. 26.9
Free	H_2O	0.2	
Combined	H_2O	26.0	
	CaO	41.8	Oxides 71.3
	MgO	29.5	
Composition Analysis	SiO_2	1.2	
	R_2O_3	0.5	
Free	H_2O	0.7	
	$CaCO_3$	1.6	
	$Ca(OH)_2$	54.0	
	$Mg(OH)_2$	41.9	
	MgO	0.5	

Ordinary Process	Chemical Analysis		
Ultimate	SiO_2	1.4	Insol. 2.0
	R_2O_3	0.6	
	CO_2	0.8	Ign. 16.3
Free	H_2O	0.5	
Combined	H_2O	15.0	
	CaO	47.8	Oxides 81.6
	MgO	33.8	
Composition Analysis	SiO_2	1.4	
	R_2O_3	0.6	
Free	H_2O	0.5	
	$CaCO_3$	1.8	
	$Ca(OH)_2$	61.8	
	MgO	33.8	

The Corson process is fully protected by patents in the United States and in foreign countries but is available to other producers under license. The G.& W. H. Corson Company designs the necessary plant and does other work connected with the installation at cost. Units can be built with capacities of from 6 to 12 t.p.h., depending on the type of lime and other factors. The system is applicable to all dolomitic limes, and work on its application to high-calcium lime is now under way. Payment is in the form of royalty on the product sold. The product is sold under the copyrighted name "Miracle" lime, which any licensee can use if he desires.

Mines Bureau Reports Issued On Two Texas Nonmetallics

The results of an investigation of vermiculite deposits in Llano County, Tex., completed in February, 1947, and of laboratory tests on samples taken during the project, are described in a new report released by the U. S. Bureau of Mines.

An investigation of the Alfred Davis soapstone deposits in Gillespie County, Tex., is described in another Bureau of Mines publication.

The Southwestern Graphite Company stopped work in May, 1947, when all the easily-handled boulders had been "mined." Resuming operations in October, 1947, this firm started a quarry at one end of the deposit investigated.

Free copies of both bulletins—*Investigation and Laboratory Testing of Vermiculite Deposits, Llano County, Tex.*, and *Investigation of the Alfred Davis Soapstone Deposits, Gillespie County, Texas*—may be obtained from the U. S. Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

Brothers Open Third Plant In Southeast Texas Area

Completion of a $50,000 gravel and sand plant two miles east of Nada, Tex., by J. G. and Leo A. Frnka is expected in the immediate future. Work on the removal of overburden from the 125-acre site is being pushed. Gravel will be pumped from the lake which will be formed as a result of these operations.

Frnka Brothers own and operate gravel pits in Columbus and Eagle Lake, Tex., and have taken on the new operation and Wharton county area.

More Information, Please!

CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. The Transportometer Automatic Continuous Weighing. Contains detailed information on the following devices: The Transportometer, the Transportofeeder, the Transportoweigher, the Transportdicator, the Transportograph, the Submaster Totalizer and the Transportotrol. Specifications, sketches and diagrams supplement the text. Sintering Machinery Corp.

2. North American Anti-Bacterial Cement. A leaflet describing the new sanitary cement produced by the North American Cement Corp. This product is said to be bacteria-resistant and is used like ordinary cement.

3. Cash in on the Building Boom in a Business of Your Own with the General and The General All-Purpose Mixer. Two fliers, the first describing a high-speed, low-cost, vibrator block machine; the second, a heavy-duty mixer designed to be used with the machine. Specifications for both are included. General Engines Co.

4. Catalog No. 18 and flier on **Heyden Liquid Shock Absorbers.** Catalog lists all 50-lb. R-S valves available and contains sketches, graphs, photographs and specifications. Flier lists four models of Heyden shock absorbers; includes full descriptions and specifications. R-S Products Corp.

5. The New Percussion Type Rockbit. Flier describing this new tool—tungsten carbide-tipped—for drilling. Presents major features and lists specifications and prices. Rockbit Sales and Service Co.

6. Labor Saving Little Giant Bucket Loaders. Bulletin 745. 4-page bulletin presenting crawler-mounted bucket loaders, pneumatic-tired loaders, portable belt conveyors, and car unloaders, all pictured and fully described. General Conveyor & Mfg. Co.

7. The Hunkins Hi-Lo Truck Mixer. 4-page bulletin listing the advantages of this open-top mixer, designed for speedy and low-cost production. Concrete Transport Mixer Co., Inc.

8. Catalog No. 100, Universal Vibrating Screens. 52-page illustrated catalog listing all types of screens made by this firm. Also described is the Univibe vibratory riddle for testing, preparing samples, etc. Universal Vibrating Screen Co.

9. Dings Certified Magnetic Equipment. Catalog C-5000A. 8-page bulletin describing many types of magnetic equipment. Data includes brief specifications, lists of applications and special features of the devices. Dings Magnetic Separator Co.

10. Eriez Permanent Magnets and Metal Detectors for Mining Applications. 4-page bulletin giving the valuable uses of these magnets and related equipment, and explaining the principles of magnetic separation and detection. Eriez Mfg. Co.

11. The New Manco Guillotine. Bulletin 610. Flier presenting a portable hydraulic cutter for wire rope and steel rod. Outstanding features are listed, and illustrations show the manner of using this tool. Manco Mfg. Co.

12. Save Space, Save Weight, Save Money with Speedaire Fan-Cooled Worm-Gear Speed Reducers. "Success stories" of six actual Speedaire installations in industry. The Cleveland Worm and Gear Co.

13. Forney's Inc. Presents the Forney Compression Tester. A bulletin telling the story of this block tester, including design features, how it operates, its advantages, and other descriptive data. Forney's, Inc., Manufacturing Division.

14. Ajusto-Spede Alternating Current Variable Speed Drive. Bulletin No. 611-D. Contains information on construction, performance and operation of Allis motors, together with engineering data, graphs, typical applications (illustrated), etc. A 2-page spread presents an exploded view of the Ajusto-Spede with eddy current brake. The Louis Allis Co.

15. McNally Pittsburg Building Type Car Retarder. Six-page bulletin presenting a description of this device, together with installation diagrams. McNally Pittsburgh Mfg. Corp.

16. Denver 30-In. Convertible Ball Mill. Bulletin No. B2-B8. A presentation of a unit designed for small mills, regrinding middlings, pilot plant work and inaccessible mill sites. Two types of this 30-in. ball mills are made: Type B and Type C. Specifications of the Type C (sectionalized) are given, and descriptions of important parts appear on the page showing the assembly of this type. Construction permits extension of this mill from 30 in. by 18 in. to 6 ft. Denver Equipment Co.

17. Erie Semi-Portable Knock-Down Type Cement Bins. A description of the Type L (single-compartment) and Type LA (two-compartment) cement plant, showing views of actual installations. Tables of capacities and dimensions are included. Erie Steel Construction Co.

18. Hardinge Pressed Steel Turntables. Bulletin No. 48. Describes the Hardinge line of turntables for materials-processing or any industrial operations where rail cars are used. Hardinge Co., Inc.

19. Compression Distillation. This folder presents an explanation of the principles of compression distillation, illustrated with a two-color sketch to show "how it works." Distinctive features of compression distillation are given and applications, such as concentrating industrial solutions, are suggested. Arthur D. Little, Inc.

20. Acme Electric Air Cooled Transformer Catalog. Provides detailed specifications and describes improvements in design and construction of Acme transformers. Includes detailed explanations and wiring diagrams. A chart shows the simple methods of using single-phase transformers in three phase hook-ups. Acme Electric Corp.

21. Your Guide to Profitable Installations of Modern Generators. 8-page two-color bulletin, No. 2200-PRD-196. Tells in non-technical terminology how to order generators. Indicates exclusive construction features and their significance in terms of economical operation. Contains many views of recent installations. Electric Machinery Mfg. Co.

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22. Centerfit—A New and Exclusive Development in Wire Rope Design. 12-page pocket-size booklet containing complete technical data on this new product. Amusingly illustrated with cartoon sketches. Includes cross section illustrations of rope and sketches demonstrating applications. Jones & Laughlin Steel Corp.

23. Hetherington & Berner Dredging Pumps. Bulletin DP-147. Presents construction, operation and performance features of the Standard and Dreadnought (heavy-duty) types of H & B pumps, with photographs, drawings and dimension tables. Arrangements of special bases and variations of drive are discussed and pictured. Included are information for ordering, power requirements, tables of capacities, revolutions and other data. Hetherington & Berner, Inc.

24. Pocket Guide to Bemis Products. This 16-page booklet pictures and briefly describes more than 40 general types of products and special services offered by Bemis Bro. Bag Co.

25. The Use of the Dustube Dust Collectors in the Manufacture of Cement. Bulletin No. 232. An industry report revealing results of using this equipment in several cement plants and listing many of these forms. American Wheelabrator & Equipment Corp.

26. The Sky's the Limit for the Big Profits You Can Make with Perma-Tile. A 4-page, 4-color bulletin with an insert on tile production. A description of the Perma-Tiler, the "first semi-automatic machine to cast concrete roof tiles without skilled manpower." Perma-Tile Concrete Products Co.

27. Standardaire Axial Flow Positive Displacement Blower. Describes a unit for handling gas or air and lists applications. A composite view of the principal parts of the Standardaire and descriptive material on performance are included, together with specifications. The Standard Stoker Co., Inc.

28. Sinex Mobile Power Unit. Bulletin No. 100-MU. Specifications and design features are listed and a drawing of the unit is included. Optional equipment is described and suggested applications are given. Sinex Projects, Inc.

29. Self Cold Curing Selfvulc. A pocket-size booklet describing plastic and liquid rubber compounds designed to give protection against corrosion, abrasion and chemicals. Complete details are furnished on application methods (applied by the user), advantages, coverage capacities, and typical uses of these compounds. Self-Vulcanizing Rubber Co., Inc.

30. New D-C Crane Control and New 2-Shoe 2-Magnet D-C Brake. First bulletin describes a control panel (CR4422) and lists 11 outstanding features. Also includes a graph of its load characteristics and describes some accessories. Second gives the details of one of the accessories, the two-shoe, two-magnet, d.-c. brake, and contains a keyed cutaway view of this device. General Electric, Apparatus Dept.

31. Link-Belt Speeder ½-Yard LS-51 Shovel Cranes. This bulletin contains many views of installations and closeups of vital parts of the LS-51. Construction features are fully described and tables of working ranges, lifting capacities and dimensions are included. Link-Belt Speeder Corp.

32. The Right Combination for Crushing. An 8-page illustrated booklet on the use of diesel power in the combination of drilling, loading, hauling and crushing. Photographs of "Caterpillar" equipment on the job in more than a dozen plants are accompanied by statements on performance from satisfied users. Caterpillar Tractor Co.

33. Byers ¼-Yard Mobile Crane and Carrier. A presentation of the Byers 83-CC. Special features are pictured and described and provision for heavy-duty lifting service is outlined. Specifications and a table of lifting capacities are included. The Byers Machine Co.

34. Syntron Electric Hammers. Full descriptions of the 25-RO self-rotating electric hammer drill and the No. 10 self-contained electric hammer, together with tools from Syntron stock, are given in this 4-page bulletin. Also featured are the No. 16, No. 22, and No. 25 electric hammers. Syntron. Co.

35. New Vickers Balanced Vane Pump. A flier containing the outstanding characteristics of this pump; also installation drawings, performance data and typical performance curves. Vickers Incorporated.

36. Joy Hydro Drill Jibs. An illustrated bulletin describing Hydro Drill Jibs mounted on trucks or on tunnel jumbos. Joy Mfg. Co.

37. Drills by Cyclone. An illustrated catalog on Cyclone Air-Speed spudder drills. In addition to descriptions of equipment and devices, the following are included: diagrams of No. 1000 Series assembly (keyed), advantages of the Cyclone spudder, views of these drills on the job, and tables on blast hole data. Sanderson-Cyclone Drill Co.

38. Handbook for Care of Centrifugal Pumps. This free manual applies to all makes. A most attractively planned booklet, illustrated with humorous and helpful sketches and prepared in a manner that will be understood by novices. Information is arranged under these heads: Let's Build a Pump, How to Figure Head, How to Locate Trouble, Sisters Under the Skin (all centrifugal pumps are basically alike), and a Maintenance Timetable. Also offered (free) by Allis-Chalmers is **Plain Facts on Care of Rubber V-Belts.** Allis-Chalmers Mfg. Co.

39. Bulletin on Bristol Pyrovisor Radiation Pyrometer. 12-page booklet (P1242) explaining the theory of radiation pyrometry and the features of the Pyrovisor Radiation Unit. Includes photographs and diagrams illustrating accessories offered to adapt the unit for use with furnaces and kilns for indicating, recording and controlling temperatures up to 4000 deg. F. The Bristol Co.

40. The New Telsmith Gyrasphere Crusher. 8-page bulletin (No. 273) giving a complete description of this fine-crushing Gyrasphere. Sixteen outstanding features are presented in a keyed cutaway view. Sectional views and dimensional drawings, tables of specifications and dimentions, and data on feed openings and capacities are included. Smith Engineering Works.

41. Corrosion Service Piping. Bulletin 485. A comprehensive treatment on stainless steel and nickel alloy anti-corrosion and anti-contamination piping. Economics, standards, advantages of welding, extensive technical data, design tips, and complete dimensional information on stainless fittings and flanges are included in the 32-page, profusely illustrated bulletin. Taylor Forge & Pipe Works.

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Screenings

by William M. Avery

IN the midst of the recent exchange of haymakers between the various branches of the not-so-unified armed forces, Pan American World Airways fired a small-gage pop gun not just at the Navy alone, but at the whole institution of surface navigation. It claims that when an equipment firm located in Miami tried to ship a 4,900-lb. rock crusher to Havana, the shipment was rejected by a steamship line on the grounds that the crusher was too heavy for any of their vessels.

Since you'd never in the world guess how the crusher was finally moved to Havana, we'll tell you: It was flown in by a Pan American Clipper. The Navy chaps are pretty busy battling the Army, so we don't suppose they'll bother to meet this flank attack from a mere commercial air line, but the crusher shipping incident strikes us as being at least relevant to the larger problem of how to deliver atomic bombs most efficiently. If it isn't practical to ship a 2½-ton rock crusher by water from Miami to Havana, we think the Navy's virtually sunk already. Next thing we know the Air Force will be rubbing salt into their wounds by offering to fly the old battle wagons from Boston Navy Yard to Long Island Sound for annual maneuvers.

Embroidery Lesson

WE'VE received several conflicting reports on the value of the loot obtained some weeks ago by yeggmen who stole a safe from the office of the Miami Crushed Stone Co. International News Service set the figure rather modestly at $46,000, but United Press jacked it up to $300,000, and tossed in 2900 shares of assorted stock for good measure.

We could be wrong, of course, but if we were guessing at the contents of that safe, we'd guess it held two somewhat tarnished "Dewey for President" buttons, a half-empty box of rusty paper clips, 17 cents in curled up postage stamps, and a lead quarter. That, at any rate, is the sort of stuff that most of the people we know keep in their office safes. The *really* careful ones take the stamps home at night.

The Brighter Side

WE ARE advised that among the prizes recently given away at an industrial exposition in Springfield, Mo., was a cubic yard of concrete donated by the Kansas City Quarries Co. In case the recipient of this windfall was puzzled to know what to do with it, he could

always, as a final resort, pour it into his bath tub. Give-away programs being what they are, there's always a chance that some day he'd latch onto a jack hammer to bust the stuff loose.

None of Their Blarney

AN ITEM from County Cork, Ireland, states that the famous Blarney Stone at Blarney Castle is not for sale—even for U. S. dollars. Seems the owner has turned down a flock of offers from Americans who would like to exhibit it in the States.

Well, its nice to have a reminder now and then that there are still a few odds and ends kicking around that the almighty dollar can't buy. Looks as though we"ll have to go right on getting our blarney from politicians just before election.

Fore!

AT THE recent annual outing of of the Chase Bag Company's Quarter Century Club the members of a golf foursome are reported to have turned in individual scores of 1, 2, 3 and 4 on the same 172-yard hole. The hole-in-one performer was C. S. Sheldon, vice president of the company. We hope they all adjourned to the 19th hole for appropriate ceremonies before concluding the round.

Batty

UNCLE SAM appears to have a mania for burying things. Not satisfied with having interred most of the world's supply of gold bullion at Fort Knox, he's now engaged in a gigantic egg-burying binge. Since January of this year the government has bought 57,788,000 pounds of dried eggs (worth $73,391,000), most of which has been stored in an

abandoned limestone gallery quarry located near Atchison, Kan.

This quaint little operation is officially described as an effort to keep prices up, and we have no doubt that it has been a howling success. Even so, we think Unk is overdue for a thorough psychiatric check-up. If his belfry isn't swarming with bats, it's our hunch that the old boy has stored them away underground somewhere.

To The Salt Mines!

WE understand that abandoned salt mines under the city of Detroit are being inspected for possible usefulness as air-raid shelters in case of an atomic-bomb attack. If it comes to a show-down, apparently the citizens of Detroit prefer their own salt mines to those of Siberia.

Industrial Sand Producers

(*From page 78*)

Percentage Depletion Vincent P. Ahearn, executive secretary of the association, told briefly about the effort to make percentage depletion applicable to all nonmetallic minerals. Although the omnibus amendment which would have accomplished this was dropped under the threat of a presidential veto, Mr. Ahearn believes that the principle has been established for the nonmetallic minerals. He explained that percentage depletion is the theory that the government should encourage industries engaged in the production of wasting irreplaceable assets, to explore the country for new deposits against the day when present deposits will be exhausted.

Washington Scene The high spot of the three-day industrial sand meeting came at the closing session, when Mr. Ahearn presented his penetrating and rather sobering review of the Washington scene. He stated that the federal deficit in the fiscal year ending July 1, 1950, has been estimated at between 4 and 8 billion dollars, and that there seems to be no immediate prospect of halting this steady drift toward national bankruptcy. Notwithstanding the certainty of continued deficit financing on this scale, Mr. Ahearn expressed doubt that in an election year the Congress will show any impulse to increase personal income taxes, or to pass a general sales tax. He mentioned, however, that there is a good possibility that corporation taxes will be increased next year.

Wages In commenting on the passage of the 75-cent minimum wage, Mr. Ahearn pointed out that the increase may affect employers even though they are paying wages well in excess of the new minimum. Labor unions, he said, will very probably want reestablished the same differential that existed under the former 40-cent minimum wage.

Collective Bargaining Unions, Mr. Ahearn said, have a "romantic notion" that they want collective bargaining, whereas they actually do not believe in it at all. Many, he stated, do not even go through the motions of practicing it. They much prefer to ram through a favorable decision with one large company in a particular industry, and then impose that decision on the entire industry.

For those who thrive on uncertainty, the speaker said in conclusion, the coming year is bound to be a happy one.

Current Labor Developments

(*From page 79*)

old-age, retirement, life, accident, or health insurance or similar benefits to employees.

9. Extra compensation for work in excess of 8 hours per day or 40 hours per week or in excess of the employee's normal or regular working hours. This extra compensation may be credited against any overtime payments due under the law.

The new law also provides several methods for simplifying payroll accounting. Space limitations prevent their discussion here. They will be taken up in some detail on this page next month.

Cement, Nonmetals Concerns Report on 1949 Earnings

Although the volume of business in certain branches of construction materials has not maintained the pace set in earlier months, several concerns reported an extremely profitable quarterly or six-month period.

Permanente Cement Company officials stated that its earnings during the second quarter of 1949 were the best in the firm's history. Net profits during that quarter soared to $1,061,882, or $1.51 per share, representing an increase of more than 75 per cent over the $0.86 per share for the first quarter. For the six-month period net profits totaled $1,661,582, or $2.37 per share, as compared with $2.33 per share for the same period in 1948.

For the six-month period General Portland Cement Company reported a net income of $2,547,800, or $2.50 per share on common stock. Net profit for the same period in 1948 was $1,859,300, or $1.82 per share.

Directors of the Lawrence Portland Cement Company declared a third quarterly dividend of 25 cents a share on the firm's 225,000 outstanding shares of $10 par value common stock, payable September 24, 1949, to stockholders of record September 9.

• Weston Smith (left), vice-president of "Financial World," is shown here presenting an "Oscar of Industry," emblematic of excellence in annual reporting, to Walter Wecker (right), president of Marquette Cement Manufacturing Company. Presentation was made before 1,000 of the nation's business leaders at the Awards Banquet held at the Hotel Statler in New York on October 31. For the fifth consecutive year, Marquette's annual report was judged best in the cement industry.

The 12-month net income of the Giant Portland Cement Company (year ending June 30) was $461,877, as compared with $331,253 for 1947-1948. Sales for the 12 months ending June 30, 1949, were $3,593,403, as against $2,797,309.

Calaveras Cement Company sales for the first half of 1949 amounted to $2,238,783, as against $2,063,443 in the comparable period of 1948.

In the first half of this year Lone Star Cement Corporation profits rose to $4,226,877 ($4.46 per share) from the $2,951,521 ($3.11 per share) of the same six-month period in 1948.

U. S. Gypsum Company earnings, while not up to the 1948 level, are continuing at a favorable rate. An extra dividend of $1.75 on common stock was declared for payment on October 1, as of which date, payments on common will amount to $4.50 a share. In the first half of 1949 the net earnings were $10,326,102, or $6.29 per share, as against $11,705,427, or $7.15 in the comparable period of 1948.

Sales of National Gypsum Company this year are expected to be about 15 percent below the $68,125,235 reported for the 1948, and earnings are forecast at about $2.35 a common share, as compared to $3.60 last year. Business reached a low point in May of this year, but has been progressively better, with August sales more than 30 percent above May.

Sulphur concerns for the second quarter show upward trends in earnings. The Texas Gulf Sulphur Company reported a net income of $6,593,341, while last year's second-quarter figure stood at $6,403,631. Freeport Sulphur Company officials released the following statement for the second quarter: 1949—$1,370,903; 1948—$974,130. During the 1949 six-month (January-June) period the net income was $2,067,130; for 1948, it amounted to $1,848,802.

Twelve-month records of the International Minerals & Chemical Corporation indicated net income of $5,421,017 for the year ending June 30; for 1948 the figure was $5,016,028.

Sales and earnings of The Warner Company showed substantial improvement in the first half of 1949. Net earnings amounted to $1,210,071 in the January-June period this year, as against $772,614 a year ago.

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personal mention

Important changes affecting plant managers at several plants of the Lehigh Portland Cement Company have been announced by Roy N. Young, vice-president and operating manager.

P. A. Groll

P. A. Groll, who has been plant manager at Oglesby, Ill., will be transferred to the main office in Allentown, Pa., in the capacity of assistant operating manager. It is expected that this transfer will be completed by early November.

H. A. Zeliff will succeed Mr. Groll at Oglesby, moving there from Fordwick, Va., where he has been plant manager of the Lehigh plant. On October 9, H. F. Shellenberger assumed charge of the Fordwick plant as plant manager. Mr. Shellenberger previously was plant manager of the Lehigh plant at Mitchell, Ind. Effective September 1, C. E. Eichelberger, who had been maintenance engineer at Mitchell, was advanced to the position of plant manager there.

H. F. Shellenberger

C. E. Eichelberger

Mr. Groll received his technical education at Rensselaer Polytechnic Institute and graduated in 1921 with the degree of chemical engineer. His employment with Lehigh began in 1925 as a chemist at Alsen, after which he worked as a chemist at the Fordwick, Union Bridge, and Bath plants. In 1930 he was assigned to the research laboratory at Ormrod. He went from there to Oglesby in 1934 to become chemist. In 1938, he was named chemist and acting superintendent and, later in the same year, assistant superintendent and supervising chemist. He became plant manager in 1945.

Mr. Zeliff is a graduate of Columbia University, having received the degree of B. S. in chemical engineering in 1938. That year he joined the staff of Lehigh research laboratory. After experience at several plants he went to Birmingham as chemist in 1943. Later he was advanced to assistant plant manager and supervising chemist. In 1946 he was transferred to the Fordwick plant as assistant plant manager and became plant manager in 1947 upon the retirement of H. A. Johnson.

Mr. Shellenberger studied chemical engineering at Drexel Institute and industrial engineering at Northeastern University and was graduated with the degree of B. S. in chemistry from Franklin and Marshall College in 1929. His employment with Lehigh began in 1936 in the laboratory at Ormrod. In 1943 he went to the Mitchell plant as chemist. Upon the sudden death of Mr. Purkhiser in January, 1945, he was placed in full charge of the plant as acting superintendent and chemist and was named superintendent in May of the same year.

Mr. Eichelberger, the new plant manager at Mitchell, is a graduate of the University of Michigan with a mechanical engineering degree, received in 1920. He was employed at the Union Bridge plant in 1923 as draftsman and engineer and served in that plant in the capacities of plant engineer, quarry superintendent, engineer in charge of construction (during plant rebuilding), general foreman and master mechanic. Thus he has become intimately acquainted with the operation of a cement plant. In 1946 he was transferred to the Mitchell plant as maintenance engineer.

The following announcement concerning changes in personnel was recently issued by Cris Dobbins, executive vice-president and general manager of the Ideal Cement Company of Denver:

Harold Lamont was promoted from plant superintendent at Houston, Tex., to Northern Division superintendent, with headquarters at Fort Collins, Colo.

Harold Lamont

Harley Fleming

Harley Fleming was promoted from superintendent at Mobile, Ala., to superintendent at Houston, Tex.

Hugh L. Conner was promoted from assistant superintendent at Devil's Slide, Utah, to superintendent at Trident, Mont.

David O. Howe was promoted from project supervisor in the general office to superintendent at Boettcher, Colo.

I. J. Dilts, formerly superintendent at Boettcher, and J. G. Luther, formerly superintendent at Trident, have retired from their respective duties.

H. L. Conner

D. O. Howe

A new post for one of its vice-presidents and "added responsibilities" for two others have been announced by the Minnesota Mining & Manufacturing Company.

Lloyd A. Hatch, vice-president formerly in charge of the firm's roofing granule division, has been assigned the job of coordinating research and new product development.

The other officers are Clarence B. Sampair, vice-president in charge of production, and C. P. Pesek, vice-president in charge of engineering. All three will report directly to the president.

Mr. Hatch, who joined the company in 1923 as a chemist, was elected a vice-president in 1946. He has been active in the development and management of the roofing granule division from its beginning about 16 years ago.

Mr. Sampair has been an employee of 3M since 1927. He was named production manager in 1940 and elected vice-president in 1946. His new responsibilities will include labor relations.

Burt M. Keene, who has been assistant plant manager of the Glens Falls Portland Cement Company at Glens Falls, N. Y., became plant manager on September 30, succeeding H. H. Lauer. Mr. Keene has been associated with the company for seven years.

Mr. Lauer, who occupied this post for the last six years, will now devote his time to personal interests.

Howard S. Ponzer has been named vice-president in charge of production of the Giant Portland Cement Company and its subsidiary, the Carolina Giant Cement Company.

PAUL B. SHOEMAKER, who was for the last five years Western sales manager for the United States Gypsum Company, was recently named vice-president and director of sales of the Georgia-Pacific Plywood & Lumber Company. Mr. Shoemaker had been associated with U. S. Gypsum for 22 years.

WILLIAM R. WILKINSON, vice-president and general merchandise manager of the building products division of the Johns-Manville Sales Corporation, was named president of the National Mineral Wool Association at the annual meeting of the group. Also named to offices in the association were the following:

R. E. DANIELS, vice-president of the Federal Portland Cement Company, vice-president; JUL HOLLMANN, Flintkote Company, treasurer; H. E. CARNEY, president of the Carney Company, and J. R. ADDINGTON, president of the American Rock Wool Corporation, members of the board of directors.

"Routine" promotions at the U. S. Gypsum Company, which were said to have no relation to other recent changes, are as follows:

E. C. FAULKNER has been made general manager, a position which has been unfilled for several years.

O. C. WHITE has moved into Mr. Faulkner's former post as general merchandise manager.

R. H. CHANDLER has succeeded Paul B. Shoemaker as Western sales manager.

J. B. MCCORKLE is now general manager of service and quality. He is succeeded as merchandise manager of insulation and sound control products by Graham J. Morgan.

Appointment of WILLIAM T. DAVIDSON, formerly director of administrative planning, to the newly-created post of general traffic manager for the National Gypsum Co. has been announced.

Mr. Davidson, who has been with National Gypsum since 1937, was formerly a member of the production department staff at the Savannah, Ga., plant.

GERALD M. BOYLE will become vice-president in charge of sales and a director of the New York Trap Rock Corporation on January 1, 1950. Mr. Boyle was formerly vice-president of the Roslyn Asphalt & Material Corporation.

JAMES R. HARRINGTON was recently appointed assistant branch manager of the Cleveland office of Monsanto Chemical Company's phosphate division.

IRA J. DILTS, formerly superintendent at the Ideal Cement Company's plant at Concrete, Colo., retired recently after 41 years of service with the firm.

Mr. Dilts began his career with Ideal in 1908 after being graduated from the Colorado School of Mines.

HARRIS N. SNYDER, president of the Federal Crushed Stone Corporation, Buffalo, N. Y., has been appointed to the Municipal Affairs Committee of the Buffalo Chamber of Commerce.

P. M. DECHAZAL was recently elected vice-president and managing director of the Stanley Tool Company of Canada, Ltd. He has been with this concern since 1948. Previously he was chief engineer for the Cia Brasiliera de Cimento Portland Perus in Sao Paulo, Brazil.

COLIN CAMPBELL has been named district sales manager of the newly formed Northern California district by Kaiser Gypsum. WALTER LORD, formerly in southern California, has been reassigned to the Northwest. He will have headquarters in Portland.

Stationed in Modesto will be W. G. MCPARTLAND. DENIS O'CONNOR will be stationed in Fresno, where he will replace DICK NORTHON, who reports to the southern California sales district. FRANK DIETZ will serve the Santa Clara Valley area.

In Southern California, JIM HAGUE will join forces with other Kaiser Gypsum salesmen in serving accounts in that area.

WARREN SCOTT has joined the order department in the Oakland headquarters of Kaiser Gypsum, while JOHN ELLIOTT, a former University of California grid center, has assumed the same duties at the newly acquired Redwood City plant, which will manufacture a complete line of gypsum products for distribution in northern California, western Nevada, Oregon and Washington.

BRYCE W. SIMPSON, formerly office manager of the Kaiser accounting offices in Long Beach, Calif., was recently appointed controller for Kaiser Gypsum.

In his new position Mr. Simpson will handle all matters pertaining to accounting, taxes, insurance, invoices, etc. He has been with the Kaiser organization for the last six years.

obituaries

HOMER M. PARKER, field engineer for the Portland Cement Association, died on October 23 at Maryland General Hospital, Baltimore, of a heart ailment. Mr. Parker was 57 years of age.

CLINTON GILBERT, 73, secretary-treasurer of the South River Sand Company, Old Bridge, N. J., died at his home in Elizabeth, N. J., on October 17. Mr. Gilbert founded the Elizabeth Novelty Company, which he operated for 40 years.

RAY W. RICHARDSON, 44, transportation manager for the California Portland Cement Company and a resident of Los Angeles, died in a hospital in that city on September 25.

THOMAS PIATT, a former employee of the Vulcanite Cement Company (not now in existence), died on September 25 in Phillipsburg, Pa. He was 77 years of age.

STUART WALTON, a former employee of The Warner Company, died recently in Philadelphia of a heart attack. Mr. Walton had been on the sales staff selling agricultural limestone for nearly 29 years before being pensioned in 1943. He was 70 years of age.

HARRY S. T. CARMICHAEL, 69, vice-president in charge of production for the Kentucky Rock Asphalt Company, Brownsville, Ky., died on September 29 at a hospital in Bowling Green, Ky. Mr. Carmichael had been associated with Kentucky Rock Asphalt for 29 years.

BENJAMIN F. HOFFMANN, a foreman at the Kosmos Portland Cement Company, Louisville, Ky., died on October 21 at his home at Valley Station. Mr. Hoffmann had been with Kosmos for 29 years.

LAWRENCE E. MEYER, 47, a sales representative for the Lone Star Cement Company, was the victim of a fatal heart seizure suffered in his home at Flora, Ill., on October 15. He had been in apparent good health until a few minutes before his death.

CHARLES J. LAIR, district sales manager for the Pacific Portland Cement Company, died of a heart attack on October 1 in Seattle while attending the Washington-Notre Dame football game. Mr. Lair was 53 years of age.

WALTER C. SCHAUS, who for the last three years operated the smelter and rock-wool plant on the eastern slope of Quartz Hill in Gilpin County, Colo., died recently in Denver of a heart attack.

CHRISTIAN E. OBERLAENDER, 59, owner of the Oberlaender Sand Company, Moline, Ill., died on September 15 at a hospital in that city after an illness of two weeks. Mr. Oberlaender had been owner of the sand concern since 1914.

JOHN T. GIVEN, who was for the last 28 years associated with the Big Rock Stone and Material Company, Little Rock, Ark., died at his home on August 29. Mr. Given was 51 years of age.

new machinery and supplies

The "Standard" L-211 International—one of 87 new models.

● New Truck Line

A completely re-designed and re-engineered line of International trucks, entirely new from front bumper to tail light, has been announced by the Motor Truck Division of International Harvester Company. The new L-line, a complete line of heavy-duty-engineered trucks consisting of 87 separate truck chassis models designed to handle every conceivable type of hauling job, went on display in dealers' showrooms throughout the country November 30.

Brought to the public after years of exhaustive testing and research, the new trucks required the greatest expenditure of any new models in International history. More than $30,000,000 was spent for the vast production changeover necessary.

The new L-line is spearheaded by four classifications of four-wheel model trucks —the "Standard," ranging from 4200 to 40,000 lbs. gross vehicle weight; the "Schoolmaster," comprising five bus models ranging from 12,500 to 24,000 lbs., GVW; the "Loadstar," ranging from 16,500 to 29,500 lbs., GVW; and the "Roadliner," ranging from 16,000 to 30,000 lbs., GVW. The new International line further features new "Metro" multi-stop units, ranging from 5300 to 10,000 lbs., GVW; a new group of six-wheel chassis units, ranging from 22,000 to 50,000 lbs., GVW; a new group of cab-forward chassis units, ranging from 14,000 lbs., GVW. The company's "West Coast" trucks, manufactured in International's Emeryville, Calif., plant, include two highway and four off-highway vehicles, ranging from 30,000 to 90,000 lbs., GVW.

A large, one-piece "Sweepsight" windshield, curved to minimize eyestrain and reduce glare, gives unobstructed full-front vision. The great increase in forward visibility is coupled with large door windows and twin rear windows to provide a total of 12.6 sq. ft. of safety glass area for safer, easier driving. Dual windshield wipers, vacuum-operated on some models, electrically-operated on others, are standard equipment.

Biggest change in chassis dimensions is in the wheelbases, which have been shortened as much as 7 inches in some models. The shorter wheelbases, together with re-proportioned cab-to-rear axle dimensions and front-axle-to-cab dimensions, have resulted in a shifting of load weight, so that it is in balance between front and rear axles.

International's new "Loadstar" L-184.

Better maneuverability results from the shorter turning radius of the shorter wheelbases, as well as from the widened axle treads. The turning angle on practically all models throughout the line has been increased to a minimum of 37 degrees, for both popular and standard tire sizes. The shorter wheelbases and re-arrangement of other chassis dimensions have made possible shorter overall lengths with no actual decrease in load-carrying lengths.

The new "Silver Diamond" engine, used in the company's light- and medium-duty trucks, is a valve-in-head, six-cylinder power plant and is built in two sizes—the 220-cu. in. displacement size at 100 hp. and the 240-cu. in. displacement size at 108 hp. Each has a compression ratio of 6.5 to 1.

Buoyant power engine mounting, with live-rubber cushioning, suspends the engine at three points.

The "Super Blue Diamond" engine has a displacement of 269 cu. in. and a horsepower of 100.5. Compression ratio is 6.3 to 1.

The "Super Red Diamond" engine is available in three sizes: The 372-cu. in. displacement size develops 144 hp.; the 406-cu. in. displacement size, 154 hp.; the 450-cu. in. displacement size, 162 hp. Compression ratio is 6.3 to 1.

The main transmissions available include two sizes of 3-speed Synchro-shift; a 4-speed sliding gear; a new 4-speed Synchro-shift; four sizes of heavy-duty, 5-speed constant-mesh, with direct or overdrive in fifth; and 5-speed Synchro-shift, with direct or overdrive in fifth. A number of auxiliary transmissions also are available.

Wider, sturdier rear axles are available in the new models. Hypoid single-speed, double reduction and two-speed with electric shift are included in the line.

In International's "Steel-flex" frame construction sturdy cross members are cold-riveted to the deep, pressed-steel channel siderails.

● Permanent Magnets

Magni-Power Company, Wooster, O., has in production a series of five magnets of different strengths for the removal of tramp iron. These are Little Atlas, Standard A, Standard AAA, Sentry and Master. All are of heavy stud weld construction, to withstand the hard usage of heavy industry.

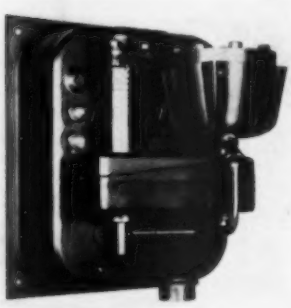
The manufacturers specialize in specific magnets for specific jobs and feature simplified, low-cost iron extraction by means of these permanently guaranteed magnets.

● Flow Meter

The Hays Corporation, Michigan City, Ind., has announced the marketing of a new type of flow meter which features a magnetic clutch to transmit the movement of the float instead of the conventional mechanical arrangements.

The new meter is called the "Hays-Penn Magna-Clutch," and is being manufactured in the plant of The Penn Industrial Instrument Corporation at Philadelphia, but sold through The Hays Corporation's sales organization.

More power with less friction is claimed for the new motor due to its exceptionally large float (3.75 in. in diameter) and long float travel (1.5 in.). The greatest source of friction and maintenance in any mechanical flow meter is the stuffing box through which movement of the float is transmitted. In the Hays-Penn Magna-Clutch no stuffing box is used. The movement of the float is transmitted through a pressure-tight manometer by means of the magnetic clutch. This construction eliminates stuffing box friction, leakage and maintenance.



Five adjustable range tubes give wide rangeability—anywhere from 17 in. to 750 in. water differential. Working pressures are given as 1500 p.s.i. and 2500 p.s.i. (convertible in the field). Six types or combinations of recording, indicating and integrating meters are offered.

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NEW CATALOG

In addition to product information, it contains information on safety glass, filter glass, respiratory hazards, etc., which will help you select proper safety equipment to meet specific hazards. Send for it!

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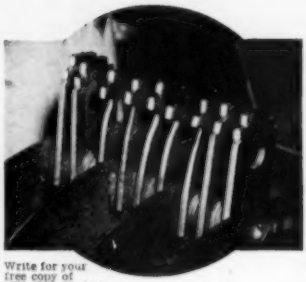

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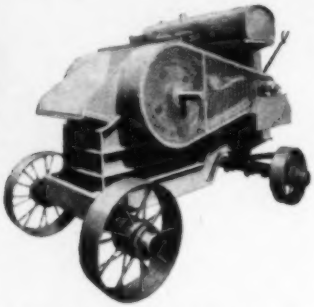
● Portable Crushing Unit

A portable crushing unit consisting of a jaw crusher mounted on a four-wheeled truck equipped with hydraulic or mechanical brakes has been announced by the Denver Equipment Company, Denver, Colo. The truck is equipped with steel wheels or pneumatic tires.

Power is furnished by the accompanying gasoline or diesel engine. Crusher size ranges from 9 to 12 ft. to 15 by 36 ft. The unit can be towed by truck or tractor and has been designed for mine and quarry explorations, road building, small-scale development work and other temporary crushing requirements.

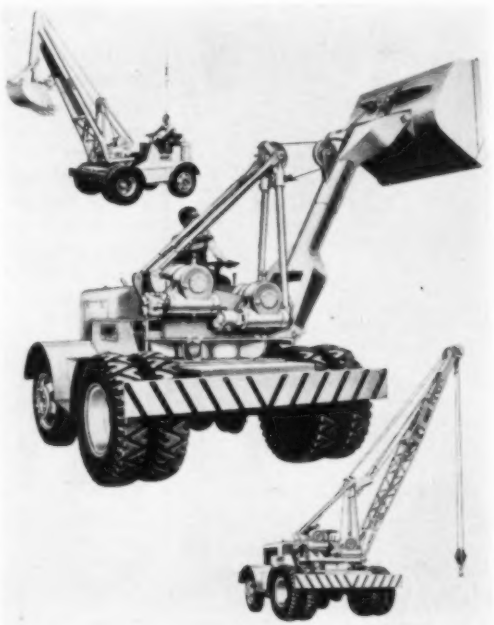


● Loader-Digger-Crane

The 1950 model Mandt "swing loader", featuring full hydraulic operation, 180 degree swing and quick change convertibility to mobile crane or backhoe, is now available through leading construction equipment distributors from coast to coast. As a loader, the unit is designed for standard ¾ cu. yd. material bucket and up to 2-cu. yd. snow-handling bucket. It is capable of loading from any point in a 10-ft. wide swath and also above grade, and can swing 90 degrees to either side to dump, permitting work within 2 ft. of trucks and eliminating the backing and turning operations required in ordinary loader operation. The main weight of the machine and all the leverage of its load are centered on the four driven front wheels for maximum traction and crowding power. Bucket is provided with power dump and return.

Utility of the machine is increased by its quick convertibility to an excavator and trencher by installation of 1/3-cu. yd. backhoe attachment in place of loader, or to a mobile 3-ton crane-operating boom of 10- to 23-ft. length which can be swung 180 degrees without outriggers to pick up or place loads. Traction speeds range from low-low for digging into tough materials to 15 m.p.h. for yard crane work and self-transportation over roads and city streets.

All loading operations are powered by standard hydraulic motors and pumps which eliminate numerous small parts and danger of breakage from overloading and provide easy finger-tip control of the work. The hydraulic boom hoist, with automatic safety brake, operates independently of hoist cable and can lower under power for accurate spotting. The operator has the choice of gravity or power control on hoisting and topping for crane work. Hydraulic rams which power the turntable positively limit the radius of swing at 90 degrees on either side. Either gasoline or diesel power can be furnished. The Mandt Mfg. Co., 490 W. Goodale St., Columbus 8, O.



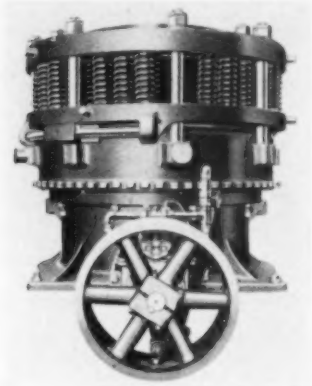
Appointment of W. J. Corr as Mack Trucks' director of service, a newly-created post, has been announced. Combining former service engineering and general service departments under his command, Mr. Corr will oversee all parts and service activities for trucks, buses and fire apparatus in Mack's eight major selling divisions in the U. S. and Canada.

Mr. Corr has been with Mack a quarter of a century in the capacity of service manager for several branches.

● New Models of Crushers

The Smith Engineering Works of Milwaukee, Wisconsin, has just announced two new models of the Telsmith Gyrasphere Crusher—the Style S Standard Gyrasphere and the Style FC Fine Crushing Gyrasphere. They include many new improvements, incorporated after several years of testing in actual service, which give greater capacity, a more uniform, cubical product, and a lower crushing cost per ton.

In the new Style S Standard Gyrasphere, larger roller-thrust bearings are

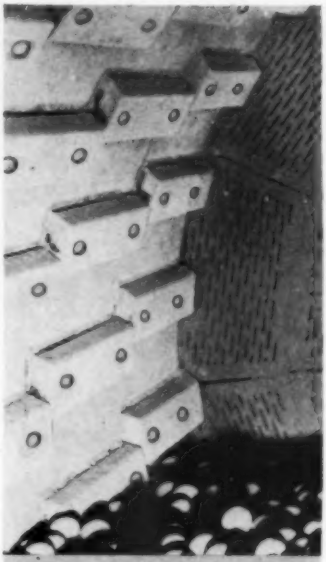


now located at the top of the eccentric and transmit crushing pressures from the bottom of the head directly into the main frame. A longer crushing stroke gives greater capacity. The eccentric bearings have more bearing area in the upper zone of greatest crushing pressures. Longer springs are used, to pass larder pieces of tramp iron. The Main Drive Gear is now located at the bottom of the eccentric instead of at the top, assuring more perfect and more permanent alignment of gears and longer life for these parts. The new model is more accessible for maintenance purposes. The Style S Standard Gyrasphere is available in the 24-, 36- and 48-inch sizes with either coarse or medium bowl.

The new Style FC Fine Crushing Gyrasphere has the same structural improvements as the Style S, plus several additional fine crushing features. It comes equipped with a new Feed Distributor, for even feeding and a more uniform product. It has more springs to handle greater crushing pressures. The Style FC has a different shape of mantle and concave with a longer parallel crushing zone to give a finer product. New Gun-Lock type mantle and concave holding devices are automatically self-tightening and make these parts easier to change. The Style FC Fine Crushing Gyrasphere Crusher also is available in the 24-, 36- and 48-inch sizes with either medium or fine bowls. The photograph shows one of the new Telsmith 48-inch Style FC Fine Crushing Gyraspheres. Catalog No. 274 describing these two new Telsmith Gyrasphere Crushers may be secured from Smith Engineering Works, Milwaukee, Wis.

LORAIN ROLLED PLATE LININGS

... for better grinding results
... for quicker, easier installation
... for more economical maintenance
... for longer life



ON all sorts of grinding jobs, Lorain Rolled Plate Linings are helping to increase production, save time, and cut costs. Because the parts are made to accurate size and in easily handled sections, they save hours of labor and reduce mill down-time. And because of the great strength of rolled carbon steel, a plate of reduced thickness can be used—thereby increasing the usable diameter of the mill and boosting output.

As lift bars wear down in service, Lorain Rolled Plate Liners may be restored to full grinding efficiency and the equivalent of a second lining by renewing the lift bars at only partial lining costs. Where pronounced variance in wear occurs at feed and discharge ends, the liner plates, being made symmetrical and interchangeable, may be reversed to opposite ends of mill to balance wear. Such flexibility and ease in restoring lining efficiency means reduced grinding costs.

U·S·S Lorain Rolled Plate Linings are available through leading mill manufacturers whose names will be furnished upon request.

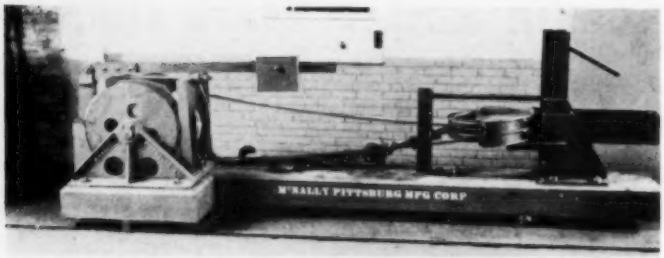
Use U·S·S GRINDING BALLS to make better, more economical grinding doubly sure.

U·S·S Grinding Balls are especially made for the industry to the most exacting specifications of hardness and toughness. Standard sizes available from ¼" to 5".

CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO
COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM, SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK
9-1451

LORAIN ROLLED PLATE LININGS AND GRINDING BALLS

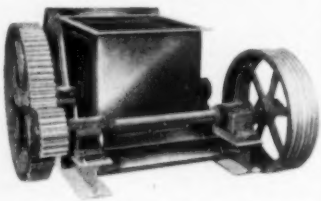
USS UNITED STATES STEEL



McNally Pittsburg bulldog type car retarders, furnished for either right or left-hand track layout, are constructed with an all-steel frame and a fabricated steel snubber post. They act as external brakes to control cars on graded tracks. They are supplied with manual, air valve or air-electric control systems. The double drum carries separate cables on each section—one leaving from the top, the other from the bottom. An important safety feature is the special "Knock-out" hook of cast steel which locks the swivel nose in place. The car chains drop to the ground when the hook opens.

● Single-Roll Crusher

The new series of single-roll crushers developed by Bonded Scale & Machine Co. is designed to reduce run-of-mine coal to small sizes in one operation. A wide range of resultant sizes is obtained through the use of several types of crushing teeth, integrated with hooked breaker teeth. Capacities to 90 t.p.h. are possible. Roll material and the breaker shoe are of chrome-hardened wear-resistant cast semi-steel. The simple adjusting mechanism on both sides of the backing plate at its base also serves as a safety device to pass tramp iron and similar material without damaging the crusher.



The hopper is welded sheet steel, with baffle plates to direct the incoming coal. The hopper is bolted to the frame and is easily removed for maintenance. The base frame of the crusher is a rectangular platform of heavy I-beams welded with reinforced webs, designed to absorb the direct load and vibration. These crushers are available for immediate shipment. Bonded Scale & Machine Company, Columbus 7, O.

● Air Hose

An improved Type 22 air hose, with the tube and rubber made of oil-proof rubber compounds, is announced by The B. F. Goodrich Company.

Three-ply fabric reinforcement and dimensions of the Type 22 continue the same. The hose is made with a smooth finish red cover with extra toughness to resist weathering and sun checking. Strong adhesion of cover to the carcass enables the hose to withstand repeated bending and flexing with less danger of separation.

The tube of the improved hose will not flake off to plug attachments or tools. The hose can now be used for a variety of applications besides its primary one as an air hose. The hose is made in ¼-in., $\frac{5}{16}$-in. and ⅜-in. sizes.

● De-Icer

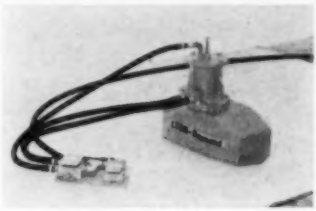
"Melt," a new chemical which is reputed to melt snow and thaw ice, is announced by The Chem Industrial Co., 1114 Hippodrome Bldg., Cleveland, O. Produced in the form of minute pellets, Melt is said to be 99 percent active. Thawing capacity of one pound is claimed to be equivalent to 12 lbs. of salt.

Melt is applied by sprinkling liberally over ice or snow surfaces. It has great covering capacity and, if used at the start of a snow or sleet storm, will melt subsequent snow falls. It is recommended for use on streets, driveways, sidewalks, parking lots, loading platforms, steps, etc. It will thaw frozen gutters, pipes, sewers and railway switches. A handful under rear car wheels will provide traction and stop wheel spinning. There is no messy residue.

Melt is available in 25-, 100-, and 200-lb. fiber drums. It is also offered in ton lots, packed in 100-lb. moisture-proof paper bags.

● Air-Operated Hydraulic Pump

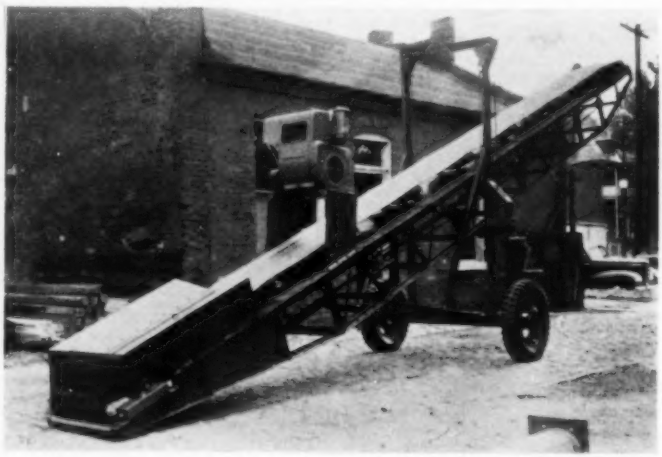
Lyon-Raymond Corp., makers of numerous types of hydraulic pumps for operating their hydraulic materials handling elevating equipment, have developed a new air-operated hydraulic pump primarily for their own equipment, which is also available to others.



The new model is very similar in operation to the company's foot- or hand-operated pumps. It simply substitutes air power for foot or hand power and can be used in place of a conventional electric motor-operated hydraulic pump.

The pump is a single acting air operated unit in that it makes one stroke of its piston each time the valve operated by a foot pedal is opened. The release is operated by another foot pedal.

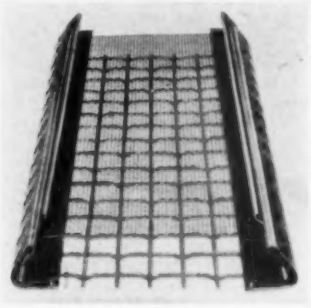
This pump is available with several styles and sizes of oil reservoir. The Lyon-Raymond Corporation, 13352 Madison Street, Greene, N. Y.



This "Class A" portable belt conveyor is the troughing type for handling sand, gravel, stone, fertilizer, wet concrete, block, bags, etc. The device is balanced on an adjustable truck. Its low loading end is desirable for hand loading or when used for unloading cars. Belt speed is 200 f.p.m.; length, 18 to 60 ft.; belt width, 18 in. or 24 in. rubber cap 60 to 150 t.p.h.; power, gasoline or electric; truck, overhead mast type with self-locking drum. General Conveyor & Mfg. Co., St. Louis, Mo.

● Backing Screen

Offered by the Ludlow Saylor Wire Company, Newstead Avenue & Wabash RR., St. Louis 10, Mo., is "Sta-Smooth" backing screen, designed for supporting fine-mesh sizing screen decks. It also helps keep the top screen clean and open for greater screening efficiency. If



a backing screen is used, a lighter wire can be employed for any screening operation, thus greatly increasing tonnage.

Ludlow Saylor also features hook strip attachments for vibrating screen decks. These strips reportedly transmit to every tensioned wire an equal share of uniform vibration, thus lengthening screen life and stepping up capacity.

● Rebuilding Packing Areas

The September issue of the *Metco News* reports that users of metallizing are saving time and money on rebuilding worn packing areas. For instance, a steel mill had two 5000-hp. compressors which are used alternately 24 hours a day, seven days a week. Due to slight throttle leakage, the stand-by unit accumulates moisture at the packing section which corrodes the mild steel shaft. The corrosive action finally causes them to seize. On one occasion, the rings revolved with the shaft until they were destroyed.

The firm decided to try metallizing. Only 11 lbs. of high-carbon stainless steel were used on each shaft, and the total machinist's time for one man was only three 8-hr. days. After one year and eight months, the shafts "looked as though they had never been used."

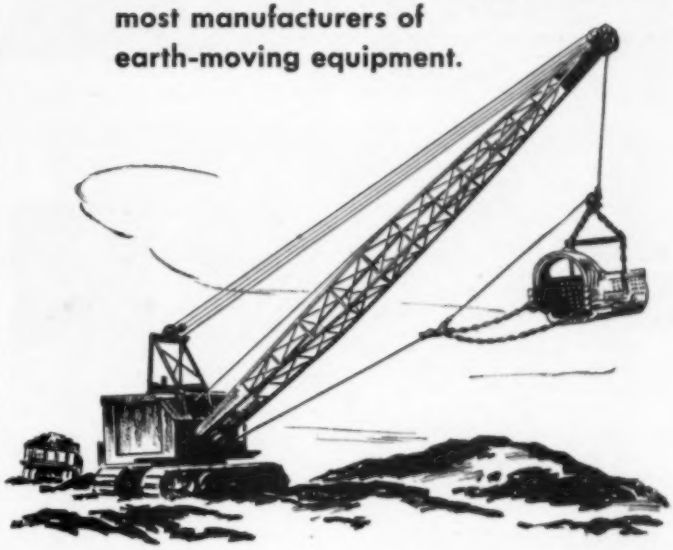
Another user tells of the metallizing jobs they do on heavy-duty press rams. Typical of these is a 7550-lb. ram from a 1500-ton forging press. These iron rams quickly become scored, due to their severe service conditions under intense heat and high load stresses, resulting in rapid wear of expensive packing. The rams are now metallized with stainless steel, which greatly increases their service life. This user saves over $800 on each repair job, over the cost of a new cast-iron ram.

A typical metallizing application is the rebuilding of worn pump sleeves. A Canadian paper mill doubled the life of pump sleeves and saved $900 in labor cost alone.

Metallizing Engineering Co., Inc., 38-14 30th Street, Long Island City 1, N. Y.

FIRST WITH MANUFACTURERS . . .

J-M INDUSTRIAL FRICTION MATERIALS are specified as original equipment by most manufacturers of earth-moving equipment.



FIRST WITH OPERATORS . . .

Operators who want to keep maintenance costs low *know* that JOHNS-MANVILLE FRICTION MATERIALS are easy to wear in, hard to wear out.

If Johns-Manville materials are right to *start* with . . . they must be right to *stay* with. When you order replacements, remember that Johns-Manville says "stop" and "go" to more tonnage than any other friction materials . . . see your Johns-Manville Friction Materials distributor or write Johns-Manville, Box 290, New York 16, New York.

JM

Johns-Manville

INDUSTRIAL FRICTION MATERIALS

No. 1 With Leading Manufacturers

● Spiral Picket Pin

A new spiral picket pin which can be easily inserted in the hardest ground is announced by The Bridgeport Chain & Mfg. Co., Bridgeport, Conn. Eighteen inches long, the pin has five corkscrew turns properly spaced for maximum earth retention. It is made of ⅜-in. bright galvanized steel.

The outstanding feature of the pin is its double ring swivel which effectively prevents chain twisting or snarling. The swivel hook moves freely around the picket while the swivel cup moves in all directions.

Uses include employment as guy wire anchors for stacks, fence posts, poles and trellises; tension supports for aerial masts and trees; tent stakes; tie-downs for stadium canvas, equipment covers and straw stack covers.

In addition to their sale by The Bridgeport Chain & Mfg. Co., spiral picket pins are available through other Round associate chain companies. These are The Cleveland Chain & Mfg. Co., Cleveland, O., Woodhouse Chain Works, Trenton, N. J., Seattle Chain & Mfg. Co., Seattle, Wash., Round California Chain Co., South San Francisco and Los Angeles, Calif.

● All-Vision Dust Mask

The new M.S.A. "All-Vision" dust mask, designed to provide facial and respiratory protection against nuisance

and harmful dusts is fitted with a lightweight, flexible all-rubber facepiece. The mask conforms snugly to the contours of the face, forming a comfortable, gas-tight seal. Easily adjusted head bands secure the mask to the head without binding, facilitate quick attachment and assure wearer comfort.

This new M.S.A. mask reportedly affords the maximum in low breathing resistance by means of a large-area, inexpensive, throw-away filter which can be quickly replaced as required. The filter container is sturdy, lightweight aluminum and is situated low on the mask for unobstructed vision. Large, clear lenses permit natural, wide-angle vision, and lenses are protected from fogging by unique inner air deflectors. The Mine Safety Appliances Company, Braddock, Thomas, and Meade Streets, Pittsburgh 8, Pa.

trade notes

Norman H. Kessler, former chief sales engineer, has been named chief engineer of the New Holland Manufacturing Company, Mountville, Pa. James D. Pfahl, a member of the sales staff, has

N. H. Kessler

J. D. Pfahl

been named assistant to the sales manager.

Mr. Kessler has been with New Holland since 1946. Prior to that he had helped his father, Lee H. Kessler, develop the principle of dual impact action which New Holland now builds into its double impeller breakers. While studying mechanical engineering Mr. Kessler worked with his father in the latter's Hornell Gravel Corporation in New York.

Mr. Pfahl joined New Holland in 1947 as a sales correspondent. He attended the University of Virginia and Shady Side Academy in Pittsburgh.

Edwin M. Perrin, formerly advertising manager of Robins Conveyors Division of Hewitt-Robins, has been appointed advertising manager of Hewitt-Robins Inc., New York, according to B. T. Moffatt, vice-president in charge of sales.

E. M. Perrin

Mr. Perrin, whose entire business career has been devoted to advertising and sales promotion in agency and management positions, will coordinate the advertising of the four divisions: Robins Engineers, Robins Conveyors, Hewitt Restfoam, and Hewitt Rubber.

According to an announcement appearing in *Fusion Facts*, publication of the Stoody Company, Whittier, Calif., the following changes have been made in the distributor organization handling Stoody products in Arizona, California, Massachusetts, Nevada, and Pennsylvania:

Arizona—Arizona Welding Equipment Co., Inc., 415 S. 7th Street, Phoenix; branch, 819 E. Broadway, Tucson. Covers all of Arizona.

California—Arnold Bros., 498 W. San Carlos St., San Jose, covering Santa Clara County.

Bakersfield Machine Co., 901 18th Street, Bakersfield, covering southern San Joaquin Valley from Merced to Kern counties, inclusive.

Baker's Welding Supply Co., 2121 16th Street, Bakersfield; branch, Fresno. Covers southern San Joaquin Valley, from Merced to Kern counties, inclusive.

California Oxygen Co., 18th and Kathleen Avenue, North Sacramento, covering territory within 50-mi. radius of Sacramento.

California Welding Gases, Inc., 53 El Camino Real South, Salinas, covering counties of Santa Cruz, Monterey and San Benito.

Gerlinger Steel & Supply Co., 1527 Sacramento Street, Redding, covering northeast portion of California, as far south as Butte County, inclusive.

McGaraghan Supply Co., 529 Broadway, Eureka, covering counties of Humboldt, Del Norte, Siskiyou and Trinity.

Oxygen Service and Supply Co., 923 Petaluma Hill Road, Santa Rosa, covering north bay area, counties of Marin, Sonoma, Mendocino, Lake and Napa.

Pioneer Steel and Supply Co., 1215 North B Street, Sacramento, covering east central portion of California—Tehama, Plumas, Solano, Sacramento, and Amador counties—and territory around Reno and Carson City.

Sigler's, 1828 Los Angeles Street, Fresno, covering southern San Joaquin Valley from Merced to Kern counties, inclusive.

Stuart Oxygen Co., 211 Bay Street, San Francisco, covering bay area within radius of 40 miles.

Valley Oxygen Co., 427 W. 7th Street, Hanford, covering lower portion of San Joaquin Valley from Merced to Kern counties, inclusive.

Welders Supply Service, Modesto, covering lower portion of San Joaquin Valley and Stanislaus and Merced counties.

Welding Service Sales, Inc., 926 Howard Street, San Francisco, covering bay area within radius of 40 miles.

Massachusetts—Silver Welding Supply Co., 1758 Centre Street, West Roxbury 32, Boston, covering eastern Massachusetts with exception of Bristol and Barnstable counties.

Nevada—Sierra Oxygen Co., 1300 E. 2nd Street, Reno, covering northeastern portion of Nevada and adjoining counties of eastern California.

Pennsylvania—Morris, Wheeler & Co., Inc., Fox Street and Roberts Avenue, Philadelphia, covering eastern Pennsylvania, New Jersey, Maryland and Delaware.

C. W. Crumb, formerly manager of the Chicago office of Oliver United Filters, Inc., was recently appointed sales analyst. He will work directly with R. G. Walker, vice-president and general sales manager, on an intensive study of all markets in the United States.

C. W. Crumb

G. G. Reed

Glen G. Reed, also of the Chicago office, will assume the duties of manager of sales in that territory.

E. B. Hill, vice-president and general sales manager of Gar Wood Industries, Inc., announced the appointment of W. S. Blakeslee Jr. as assistant general sales manager for the corporation. Prior to his appointment Mr. Blakeslee was sales manager of the Wayne Division, located in Wayne, Mich.

Immediately following his appointment, Mr. Blakeslee announced that R. J. Nymberg would succeed him as sales manager of the Wayne Division. Mr. Nymberg will be responsible for the sale and service of all products of the Wayne Division nationally.

The International Paper Company's Bagpak Division has appointed Hugh O'Neill as sales representative in northwestern Ohio, northern Indiana, and Michigan except the peninsula. Mr. O'Neill's office is at 2408 Terminal Tower, Cleveland 13, Ohio.

William E. Madden, recently elected vice-president, has now been made general sales manager of the George Haiss Mfg. Co., Inc., New York, N. Y., a division of the Pettibone Mulliken Corporation, Chicago. The Haiss Company makes all types of portable conveyors, buckets and bucket loaders.

Harry E. Lewis has been assigned to the Foreign and Export Department, Worthington Pump and Machinery Corporation, Harrison, N. J. Mr. Lewis was formerly works comptroller at the Holyoke, Mass., works. George Bourque has been appointed works comptroller to succeed Mr. Lewis.

"Our 5 SECO Screens in daily use—never shut down for repairs"

says Roy Webster, Bundy Concrete, Sherbourne, N.Y.

Here is another example of Seco performance on the job! The Seco pictured above is one of 5 now in constant daily operation at the Bundy Concrete Company's plant. For maximum capacities, correct sizing and trouble-free operation, you can't beat Seco vibrating screens.

The modern, efficient plant layout of the Bundy Concrete Company, naturally calls for Seco vibrating screens. Seco's controlled, true circular action is a boon to good production.

In the words of Mr. Roy Webster, Sup't. at Bundy: "For smooth, consistent operation, nothing else compares with a Seco. Our five Secos are never shut down for repairs."

Seco Can Improve Your Screening Results
Send for new Catalog No. 203, Dept. L

SECO VIBRATING SCREENS

SCREEN EQUIPMENT CO., INC.
1752 WALDEN AVENUE BUFFALO 21, NEW YORK
In Canada, United Steel Corp. Ltd., Toronto, Ont.

The Mandt Manufacturing Company has been incorporated at Columbus, O., to manufacture and market the Mandt "Swing Loader", a hydraulically-operated materials loader with 180 degree swing which can also be quickly converted by attachments to either a mobile crane or a backhoe. General and sales offices are at Columbus and the plant is at Warren, O., where machines are now in production.

O. G. Mandt

O. G. Mandt, who heads the new company, patented and marketed what is said to be the first mobile swinging loader and crane in more than 27 years. This was before he joined the Jaeger Machine Company, from which he recently retired as president. President Mandt states that national distribution has already been established through leading construction equipment dealers who maintain complete stocks and service. Other officers of the company include V. G. Mandt, vice-president in charge of sales, J. J. Quilligan, secretary-treasurer, and Charles Taylor, assistant secretary-treasurer.

The Abbe Engineering Company of New York, N. Y., manufacturer of pebble, ball and tube mills, mixers, dispersers and sifters, announces the acquisition of the plant, equipment, designs and good will of the Kent Mill Company, Inc., of Brooklyn, N. Y.

For half a century, Kent-Maxecon Pulverizing Mills have been outstanding in economical and efficient performance for the grinding of hard and soft friable materials such as cement, clinker, coke, magnesite, hard clays, silica, chrome and manganese ores, limestone, lime, gypsum, bauxite, barytes and phosphate rock. The Kent Filter Air Separator has also been widely used in the separation or classification of many materials, because of its low power consumption and efficient performance.

Henceforth, the Kent Mill Division of the Abbe Engineering Co. will take over all the activities of the former company. All correspondence with regard to new equipment, repair parts and accessories should be addressed to the new Division at 50 Church Street, New York 7, N. Y.

The acquisition by Elliott Company of the business and assets of the Crocker-Wheeler Division of Joshua Hendy Corporation has been announced by Grant B. Shipley, chairman of the board of the Elliott Company, Jeannette, Pa.

Elliott Company is a builder of steam, power, and electric equipment for process plants. Elliott plants are located at Jeannette, Pa., Ridgway, Pa., Springfield, O., and Newark, N. J. The Ridgway Division manufactures large electric motors and generators. Crocker-Wheeler is one of the oldest American manufacturers of motors and generators.

The Crocker-Wheeler Division of Elliott Company will continue to operate under its previous management with Charles A. Butcher as general manager. Mr. Butcher has also been elected a vice-president of Elliott Company.

O. V. Norvig

The appointment of Otto V. Norvig as sales engineer of the Crusher and Process Machinery Divisions is announced by D. A. Cheyette, vice-president, Nordberg Manufacturing Co., Milwaukee 7, Wis. Mr. Norvig will assist J. B. Bond, district manager, Milwaukee office, and will specialize primarily in the cement and nonmetallic minerals fields.

In 1940 Mr. Norvig joined Allis-Chalmers Manufacturing Co., where he completed that company's student engineering training program. In 1946 after his return from serving in the U. S. Army, he rejoined Allis-Chalmers, where he did sales engineering work on crushing and cement machinery until his appointment with Nordberg.

SYNTRON

Speeds Up Bulk Material Handling!

"Vibra-Flow"

VIBRATORY FEEDERS

—with capacities of up to Hundreds of Tons per hour of various materials—hot or cold—dry or damp—from fine powders to big abrasive lumps.

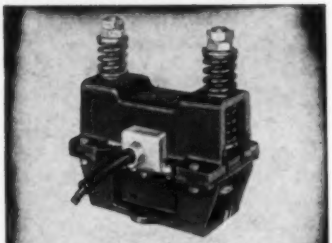
—at instantly controllable rates—just turning a rheostat or reactor dial gives a range of feed, from a trickling dribble to a gushing torrent.

—to grinders, crushers, dryers, belt conveyors, etc.

Catalog literature available.

SYNTRON CO.

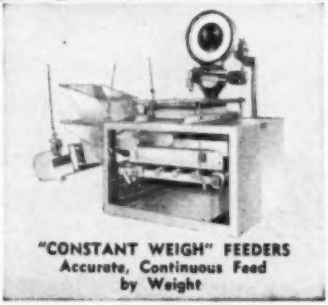
385 Carson Homer City, Pa.



BIN VIBRATORS
Make Stubborn Materials Flow Freely

VIBRATING SCREENS
Wet or Dry — Single or Multiple Decks

VIBRATING GRIZZLIES
Both Feed and Scalp With One Unit



"CONSTANT WEIGH" FEEDERS
Accurate, Continuous Feed by Weight

E. F. Luna, formerly advertising manager of Anaconda Wire & Cable Company, has been appointed sales promotion manager of that company. This newly created function will cover sales-advertising liaison, new product promotion, market analysis, market development, sales training, publicity and customer and public relations.

Fred Dolton

Fred Dolton has been appointed district sales engineer for Pioneer Engineering Works, Minneapolis, Minn., to represent the company in New England, New York, Pennsylvania, New Jersey, Maryland and Delaware.

Pioneer Engineering Works builds gravel and quarry crushing, screening and washing equipment, as well as asphalt plants, mining equipment and conveyors for bulk materials handling. The company recently has added screens, feeders and conveyors for coal field application.

Joseph D. Cotton, vice-president and director of The Four Wheel Drive Auto Company, died suddenly at his home in Clintonville, Wis., on September 23. He had been connected with FWD since 1915.

Mr. Cotton had purchased FWD stock when the company was first organized. In 1915 he became advertising manager. He was elected a member of the board of directors in 1918, and in 1919 became the first president of FWD's subsidiary in Canada, Four Wheel Drive Auto Company, Ltd. He was named vice-president of the parent company in 1920.

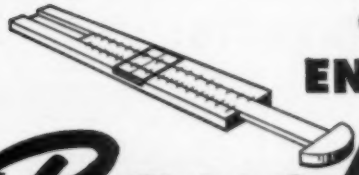
The appointment of Fred O. Benson as sales representative for Illinois was recently announced by the Flexible Steel Lacing Co., Chicago, manufacturer of belt fasteners and belt cutters. He takes over most of the territory formerly covered by Sam Baker, who retired last year after serving the company for 31 years.

William J. Sparling is the newly-elected vice-president and manager of the Chain and Transmission Division of Chain Belt Company. Mr. Sparling joined Chain Belt in 1928 as a student engineer. He became works manager in 1945, serving in this capacity until his recent appointment.

E. P. Meyer succeeds Mr. Sparling as works manager; and Roscoe O. Byers has been appointed factory manager, Chain & Transmission Division.

Clarence B. Ringham is now factory manager of the Heavy Machinery Divisions. This includes the Conveyor and Process Equipment Division and the Construction Machinery Division.

George B. Flanigan, newly-appointed manager of trade relations, started with Chain Belt as a student engineer in 1925.



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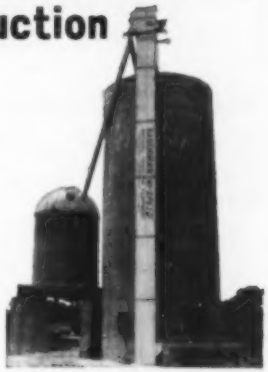
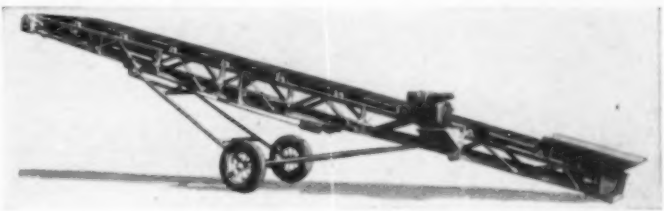
This quarry is Custom Engineered to maximum efficiency with Baughman HI-SPEED Conveying Equipment . . . Practical, experienced engineering—proven in operation—that will meet your exact requirements, increase your output, and reduce your operating costs. Baughman standardized production methods cut your equipment expenses. We welcome the opportunity to discuss your particular problem . . . There is no obligation. Quality materials and expert construction minimize your maintenance expenses.

Some Valuable Sales Franchises are Still Available. Write for Information.



Pictured Above: MODEL NO. 175 STANDARD MEDIUM-DUTY BELT AND BUCKET CONVEYOR

Pictured Below: MODEL NO. 164 TROUGH BELT CONVEYOR



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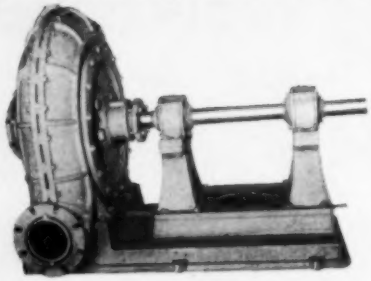

6" Heavy Duty "Tell-Tale" Pump Equipped with Ball Bearings

1. You CAN'T wear out a "TELL-TALE" CENTRIFUGAL SAND AND GRAVEL PUMP SHELL.

2. You CAN produce more Aggregate year after year with a "Tell-Tale" Pump than with any other make, size for size, that you've ever used, seen, or heard of.

PROOF

The first statement is proved everywhere "Tell-Tale" Pumps operate. It is made possible by the patented Split Shell, with its Inner Shell Liner, which takes all of the wear that would otherwise be absorbed by the Shell. The unique "tell-tale" warning the operator receives when the Shell Liner has worn thru, prevents any wear from taking place on the Split-Shell. Descriptive Bulletin gives complete details. Satisfaction guaranteed.

The second fact has been long established by hundreds of users in 17 States. This is due to the higher vacuum "Tell-Tale" Pumps build up, which means greater suction and the ability to discharge against higher "heads".

Write for descriptive Bulletin "P", stating size Pump in which you are interested.

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THE MODERN MACHINE

for efficiently sizing test samples of sand, gravel, crushed stone, slag, and similar materials.

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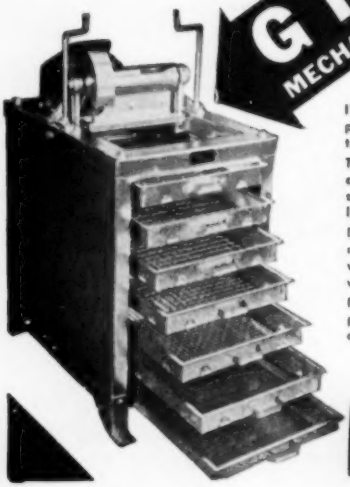
Classifies coarse or fines from 4" to 200 mesh



IT'S EASY to assure a controlled, high-quality product, by running test samples of your materials through a GILSON Screen.

This compact and sturdy unit operates quickly and accurately, making from two to seven separations simultaneously, in five minutes or less.

It handles samples up to one cubic foot, and may be used for routine testing, for research work or for special separation jobs involving very fine materials.

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Complete information sent on request

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John E. Morrison

Link-Belt Company, Minneapolis plant, announces the opening of a district sales office in Duluth, Minn., with headquarters at 422 Board of Trade Bldg., 301 West First St., Duluth. John E. Morrison is in charge as district manager. Mr. Morrison will be assisted by Harold A. Ivarson, who has been transferred from the Link-Belt plant in Minneapolis, where he handled local business.

The Duluth office is being established to better serve the materials handling and power transmission needs of the industries, mines and engineers in northeastern Minnesota, northern Wisconsin and the upper peninsula of Michigan.

Charles F. Dedon has been appointed manager of the Mack Truck Company's Mineola Direct Factory Branch. Mr. Dedon joined the company in 1918 as a clerk. During the ensuing years he served the company as purchasing representative for its New York City branch, salesman, sales engineer and assistant to the manager of the Mack New York City branch.

J. F. Berger

F. G. Hoyt, general manager of the Woven Wire Fabrics Division, John A. Roebling's Sons Company, Roebling, N. J., announces the appointment of J. F. Berger as manager of sales for industrial wire products. At the same time Samuel K. Hornor was named manager of sales for hardware products. The promotions are in line with the Division's new merchandising plan of complete service in two operations.

Mr. Berger, has been associated with the Roebling Company for over 35 years. His entire years of service have been spent in the woven wire fabrics field.

Mr. Hornor has served Roebling in various sales capacities for 12 years and brings to his new position valuable experience in handling hardware products.

John Mitchell, formerly retail salesman in the Hyster Company Chicago store, has been promoted to the position of district manager of truck sales for the northwestern section of the country.

John Cusick has been named lift-truck sales district manager responsible for the central portion of the United States. He has been with the Hyster Company since 1944.

Also named to positions as district managers are W. J. O'Brien in the southwestern territory, C. E. Houston in the northwest district and Fred Schultz in the southeastern part of the United States.

legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

A few days ago a reader wrote a letter, as follows: "Last week an employee in a public garage neglected to put on the emergency brake and let our truck race down a ramp. The truck was badly damaged. Can we recover damages from the garage owner, and if so how much can we get?"

According to a recent higher court a garage owner whose employee *negligently* damages a motor vehicle brought in for repairs is liable for *full* cost of putting the vehicle in the same condition it was before the accident, plus *all* incidental damages suffered by the owner.

For example, in *Reinhart & Donovan Company v. Dunlap*, 197 Pac. (2d) 958, it was shown that a 1942 model truck was negligently permitted by a garage employee to fall into an open elevator shaft. The truck had been taken to the garage by its owner for repairs.

The truck owner hired another truck for 21 days while his truck was being repaired. Then he sued the garage owner whose employee had wrecked the truck. The higher court awarded damages equal to $766.61 for repairs, plus several hundred dollars for rental of the substitute truck. This court said:

"The uncontradicted testimony showed that plaintiff lost the use of his truck for 21 days, and a resultant expense, necessarily incurred, in renting another truck for use in his business during such period.

Which Is Liable?

Considerable discussion has arisen from time to time over the legal question: What employer is liable for payment of compensation to an employee who contracted silicosis? According to a recent higher court *only the employer* that was *on the risk* during the period of *last* injurious exposure to the hazards of silicosis is liable for compensation.

For example, in *Bye v. Interstate Granite Company*, 53 S. E. (2d) 274, an employee of the Interstate Granite Company sued for compensation for total and permanent disability caused by silicosis contracted in the course of employment as a granite stone cutter through the inhalation of silica dust. The testimony showed that the employee had been during successive periods of employment exposed to the disease. In other words, over a period of years he had worked for several employers.

The last employer was the Interstate Granite Company and the higher court held that this company must pay compensation to the employee, saying:

"Bye (employee) had been working, intermittently, for the Granite Company since 1941. His last resumption of work began in 1947, and lasted 39 days."

What Is a Public Nuisance?

Considerable discussion has arisen from time to time over the legal question: What is a public nuisance which can be prohibited by municipal authorities? According to a recent higher court a "public nuisance" consists in unlawfully doing an act, or omitting to perform a duty which annoys, injures or endangers the comfort, repose, health or safety of any considerable number of persons.

For example, in *New York Trap Rock Corporation v. Town of Clarkstown*, 85 N. E. (2d) 873, the testimony showed facts, as follows: Beginning in 1939 the New York Trap Rock Corporation has operated in a city a quarry, where stone is processed into material for commercial use. In the quarrying of the stone and rock various charges of dynamite are used, whereby the rock is loosened.

The New York Trap Rock Corporation filed suit to invalidate an ordinance restricting its operations, and the city filed a counter suit alleging that operation of the quarry is a "public nuisance" which has caused private properties to be damaged and depreciated in value and injured the health of the citizens.

The counsel for the rock company argued that the city authorities had no power to file the suit, but that the objecting owners of nearby private property must file the suit. The higher court held:

"We think that a municipal corporation has the capacity and is a proper party to bring an action to restrain a public nuisance which allegedly has injured the health of its citizens. . . No sound reason is advanced why the Town cannot maintain an action to restrain a public nuisance affecting the health of its citizens."

Burden on Property Owner

It is well established law that a property owner who desires to erect a plant in a section zoned for residences *must prove* that the zoning ordinance is unreasonable, or he cannot receive a permit to erect the building.

In *Grant v. Board of Adjustment*, 45 Atl. (2d) 184, it was shown that the owner of a valuable lot in a residential section applied for a permit to erect a service station. His application was refused because a zoning ordinance restricted this section for residences. The higher court approved the rejection, because the property owner did not prove

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Both from same
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that the ordinance was unreasonable. The court said:

"The burden of showing the unreasonableness of zoning restrictions is on one seeking to make use of his property in a manner forbidden by the zoning ordinance."

G. I. Is Killed

Considerable discussion has arisen from time to time over the legal question: If a G. I. on government training is killed or injured what compensation can he draw?

In *Wood Company v. Cole*, 209 S. W. (2d) 290, it was shown that a G. I. named Cole qualified for United States Government Subsistence payments under the G. I. Bill of Rights. He was classified as a tractor and automobile mechanic. Cole's beginning wage was $50 per month. He received in addition to the $50 per month from the company subsistence payment from the Government of $90 per month.

Cole was killed while welding a tractor. This question was presented the court: On what salary basis can compensation under the State Workmen's Compensation Act be paid to Cole's dependents? This court allowed compensation based on a salary of $140 per month, and said:

". . . The subsistence allowance of $90 per month paid to Cole by the Government must be considered as part of Cole's wage within the meaning of the Compensation Law and when this sum is added to $50 per mouth paid by the Mercantile Company, Cole's total wage was $140 per month, which entitled the claimants to compensation at the rate of $20 per week."

Employee Forfeits Compensation

According to a recent higher court an injured employee positively forfeits his right to receive compensation for an injury if he fails to comply *strictly* with a state law which limits the time for filing a suit for compensation.

For illustration, in *Grey-Wolf Company*, 34 So. (2d) 53, an injured employee delayed more than one year after he sustained the injury.

In view of a state law which requires injured employees to sue for compensation within one year after sustaining an injury, the higher court held that the employee forfeited or lost the right to recover *any* compensation.

Not Legal Employee

Recently a higher court was asked to decide this question: If a cargo is left in care of the consignee's employee, is the consignee responsible for future damage or loss of the cargo? The answer is *no* unless the testimony proves conclusively that the employer positively authorized the employee to accept delivery of the cargo.

For example, in *F. E. Grauwiller Transp. Company, Inc., v. Gallagher Bros. Sand & Gravel Corporation*, 173 Fed. Rep. (2d) 708, it was shown that a tug moored a scow so that it extended more than 100 feet beyond a decked portion of a pier and close alongside broken spiles. The scow sank.

In subsequent litigation the tug owner contended that he was not liable for sinking of the scow because he had left it in care of an employee of the scow's owner.

The higher court held the owner of the tug liable for loss of the scow and its cargo, saying that the testimony did not prove that the employee who accepted delivery of the scow was authorized by his employer to accept delivery of the scow.

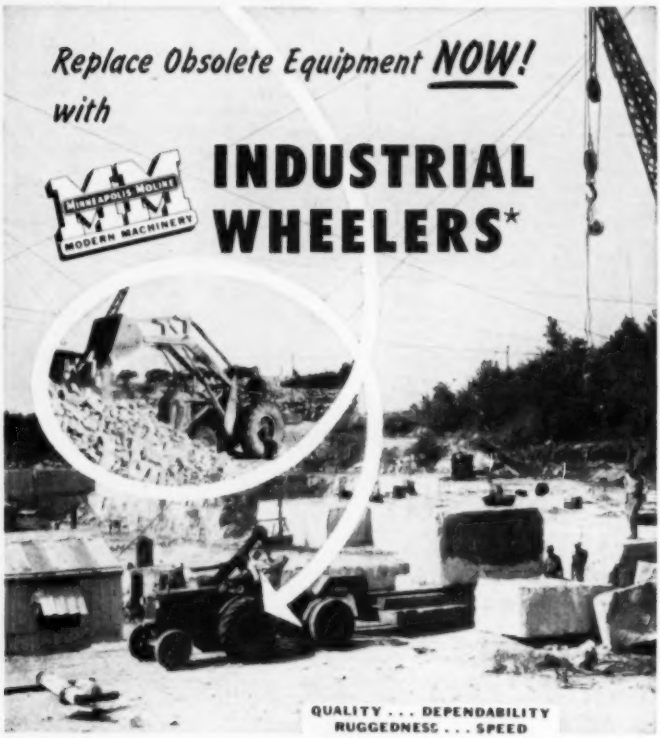
No Corruption

Modern higher courts consistently hold that it is perfectly legal for a company to employ a representative to obtain new business from the United States Government.

For illustration, in *Hildebrandt v. National Solvents Corporation*, 59 Atl. (2d) 45, the testimony showed facts, as follows: A corporation hired an employee named Hildebrandt under a written contract to procure contracts from the government, and to act as the Washington representative of the company.

In subsequent litigation it was contended that such a contract was invalid because it was corrupt and against public policy because it contemplated obtaining contracts or awards from the government by influence and persuasion. The higher court refused to agree, saying:

"The testimony reveals no evidence from which it could reasonably be inferred that the services to be performed were of such a nature as to permit an inference that they might tend to in-



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fluence improperly any agency of the government or that the services had an inherent tendency to invite or promote the use of sinister or corrupt means to accomplish the end sought."

Must Prove Negligence

According to a recent higher court a company which blasts for rock or other material is not liable in damages to owners of injured property if the testimony shows that the company's employees exercised "ordinary care" when blasting, and adopted methods outlined by the *American Table of Distances.*

For illustration, in *Drumm v. Simer,* 205 Pac. (2d) 592, it was shown that a private dwelling was approximately one and one-quarter miles from the nearest blasting operations for rock. The dwelling owner sued the company which had carried on the blasting and alleged that on October 9, at about 5:00 p. m. the company caused a blast to be set off that shook his house, causing cracks in the plaster, the foundation, and the garage floor.

The company officials introduced testimony proving that its employees had used ordinary care when blasting. Since the property owner failed to prove that the company's employees were negligent, the higher court refused to award the property owner damages and said:

"Plaintiff (property owner) could not recover unless there was proof of negligent acts. There was no proof of the alleged negligent acts. As a matter of fact, the proof was all to the contrary that defendant conducted his blasting in a careful and prudent manner in accordance with established safety methods in handling dynamite and within safe distances limited by the *American Table of Distances,* a recognized authority on handling dynamite."

Train Demolished Truck

Recently a higher court held that a railway company is liable for full damages caused by a train colliding with a motor vehicle.

For illustration, in *Ville Platte Concrete Company v. Chicago, R. I. & P. Ry. Company,* 40 So. (2d) 668, the higher court awarded the Ville Platte Concrete Company $1,450 damages against a railway company whose train ran into and demolished the truck. The court said:

"The testimony is undisputed that the truck of plaintiff which was demolished as a result of the accident had a value prior to the accident of $1,500, and after the accident the salvage value of this truck was only $50. Therefore, the judgment of $1,450 rendered by the District Court is correct."

Option to Purchase

Modern higher courts consistently hold that both a property owner and a tenant are equally liable for failure to perform according to the exact terms of a lease contract which gives the tenant an option to purchase the property.

For instance, in *Superior Portland Cement, Inc. v. Pacific Coast Cement Company,* 205 Pac. (2d) 597, the testimony showed facts, as follows: In the

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To obtain faster reduction, plus higher efficiency in reducing to agstone size, American ACS Hammermills have a *special center feed.* The hopper opening is centered over the rotor, subjecting the stone to longer travel in the hammer circle and greater frequency of impact—assuring a higher ratio of fines. Quickly and easily adjusted to different sizing, American Center Feed Hammermills offer three types of hammers to insure complete flexibility of crushing action: A. "Bruite" for heavy duty. B. "Broadhead" for medium reduction, and C. "Splitter" for fine reduction. The type of hammer—and number of hammer rows are fitted to your specific sizing operation.

Write for "Better Stone Crushing" bulletin.

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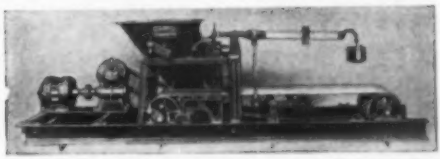

Producers of raw and finished materials consider this machine a "yardstick" for measuring high efficiency in scaling operations on the conveyor line.

The SCHAFFER Poidometer weighs and proportions materials automatically with a speed and accuracy that assure maximum plant output and profit records.

Designed for easy operation, and durably built throughout, SCHAFFER Poidometers insure top availability, operating economy, and product uniformity.

Available with remote control weighing and recording devices, and total weight recorders.

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K-P *Engineered* WIRE SCREEN

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Korb-Pettit Wire Screen is not only first quality in material and workmanship but is engineered for the job involved. Available in High Carbon Spring Steel and Oil Tempered Spring Steel for extreme abrasion resistance. Designed for all types of vibrators and rotary equipment. Request literature.

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"KEEPS PROMISES"

year 1931 the Pacific Coast Cement Company leased its Seattle cement manufacturing plant and its interest in the placer mining claims, upon which is located the Dall Island quarry, to the Superior Portland Cement, Inc., for 5 years. As rental the latter company agreed to pay 40 per cent of the profits derived from the quarrying, manufacture, and sale of cement. The contract contained a clause giving the Superior Portland Cement, Inc., an unconditional option to extend the lease for a further period. Another clause stated that if the Pacific Coast Cement Company decides to sell the premises it will give to Superior Portland Cement the first right and privilege of purchasing the same at the price it is willing to accept from any other person, firm or corporation. At termination of the lease the Pacific Coast Cement Company offered to sell these properties to the Superior Portland Cement, Inc., for the sum of $2,500,000, which offer was *not* accepted. Then the Pacific Coast Cement Company offered to sell the properties to General Construction Company for $1,170,240.90, plus certain book costs and inventories. The Superior Portland Cement, Inc., protested and was informed that the properties would be sold to General Construction Company, whereupon Superior Portland Cement Company filed a suit and asked the court to compel the Pacific Coast Cement Company to sell the properties to it at the same price which General Construction Company was willing to pay. The lower court refused to award Superior Portland Cement, Inc., a favorable verdict, but the higher court reversed the verdict, and said:

"Respondent (Pacific Coast Cement Company) was not free to quote one price to appellant (Superior Portland Cement, Inc.) and then, as the result of negotiations with other parties, sell to another at a less price than that quoted. Respondent was free to negotiate with other parties and obtain the highest offer it could obtain for the properties, but if, during the term of the lease, respondent obtained an offer from another at which it was willing to sell the properties, respondent was obligated to accord to appellant (Superior Portland Cement Co.) the right to purchase at that price."

For comparison, see *Time Company v. Palmer*, 182 P. (2d) 695, 697. This court held that a lessee who holds an option to purchase has the unqualified right to purchase at any time the lessor decides to sell.

Arbitrator Decides in Favor of Automobile Dealer

According to a recent higher court an agreement to submit a controversy to "arbitration" is valid. Hence, a decision rendered by an arbitrator is final, and not reviewable by a court.

For illustration, in *Hutto v. Jordan*, 36 So. (2d) 809, it was shown that a seller sold gravel for $383.00, of which $94.00 was paid in cash "leaving a balance of $289.00".

In subsequent controversy, involving payment the seller and the purchaser agreed to submit their differences to one Kelly, who was to decide whether the seller or the purchaser "was in the right". Kelly decided in favor of the seller.

The purchaser was not satisfied with the decision and filed suit. The higher court refused to change the decision rendered by Kelly, and said:

"Errors of law or fact, or an erroneous decision of matters submitted to the judgment of the arbitrators, are insufficient to invalidate an award fairly and honestly made."

Not Legal Agent

Considerable discussion has arisen from time to time over the legal question: Is a property owner liable for payment for materials purchased by a contractor who does work on cost-plus contract? The answer is only when the contractor has been appointed agent by the property owner.

For example, in *Carruth v. Valley Ready-Mix Concrete Company*, 221 S. W. (2d) 584, the testimony showed facts, as follows: A man named Carruth had some buildings erected and repaired by a contractor. The latter obtained materials for the buildings from Valley Ready-Mix Concrete Company. The bill was not paid and the concrete company sued the contractor on an open account and also asked the court to grant a mechanic's lien against Carruth's real property. It was contended that the contractors were Carruth's agent in purchasing the materials because the

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has many advantages

Design features of this 36 x 30 E stone crusher include: (1) Meehanite frame, sectionalized when necessary; (2) removable water cooled bearings; (3) improved design of swing jaw bearing; (4) force-feed oil lubrication, or circulating system if desired; (5) split flywheels; (6) flat or V-belt drive.

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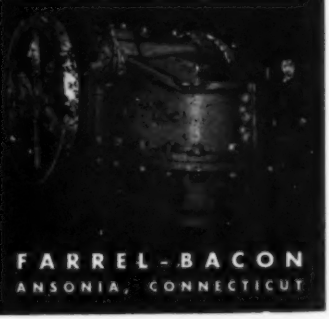

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cost-plus contract between Carruth and the contractor automatically rendered Carruth liable for payment. The higher court refused to award the concrete company a mechanic's lien, saying:

"The established rule is that a cost plus contract does not, of itself, make an independent contractor the agent of the owner of a building for the purchase of materials for its erection or repair."

Also, see *J. B. McCrary Engineering Company v. White Power Company*, 4 Cir., 35 F. (2d) 142. This court held that a cost plus contract did not make a contractor the legal agent of the owner.

And in *Allen v. Republic Building Company*, 84 S. W. (2d) 506, 509, the court held that a cost plus contract did not, of itself, make the contractor the legal agent of the owner. This court explained that a contractor may act as legal agent of the property owner only when the latter expressly or impliedly gives the contractor authority to represent him.

traffic news

CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 87216 (1)—Proposed to establish on all kinds of sand and gravel, in box cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible or cubical capacity, actual weight will apply from Glass Rock, O., to Zanesville, O., 94 cents per net ton. Proposed rate also applies in open-top cars with tarpaulin or other protective covering.

Docket 87217 (2)—Proposed to establish on limestone, agricultural unburned, in bulk in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Carey, O., to Brink Haven and Mt. Vernon, O., $1.71 per net ton and Orrville, O., 158 cents per net ton.

Docket 87241—It is proposed to establish on sand, all kinds and gravel, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible or cubical capacity, actual weight will apply from Glass Rock, O., to Yellow Springs, O., 177 cents net ton in open-top cars; 204 cents net ton in box cars. Rates shown include ExParte 162-B—166-C and 168-A increases.

Docket 87245—Establish on stone, fluxing, furnace or foundry, melting or refractory, unburned, in bulk in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Marblehead, O., to Detroit, Mich., 110 cents gross ton. Rates shown include ExParte 162-B, 166-C and 168-A increases.

Docket 87252 (2)—Proposed to establish on limestone, ground or pulverized, unburned, carload minimum weight 60,000 lbs., from Greencastle, Ind., to Marion, O., 286 cents per net ton, in open-top cars; 336 cents net ton in closed cars.

Note—Rates shown under Central Territory Railroads, freight traffic committee, include ExParte 162-B, 166-C and 168-A increases, unless otherwise specified.

Docket 87259 (1)—Proposed to establish on agricultural limestone (not ground or pulverized) and agricultural limestone screenings, unburned, in bulk, loaded in open-top cars only, carload minimum weight per car, 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Carey, O., to Cambridge, O., 201; Dillonvale, O., 213 cents net ton.

Docket 87260 (1)—Proposed to establish on limestone, agricultural, unburned, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Russellville, Ind., to Ficklin and Tuscola, Ill., 100 cents net ton, to expire December 31, 1950.

GENERAL FREIGHT TRAFFIC COMMITTEE EASTERN RAILROADS

Bulletin G-940—Proposed to establish on limestone, ground or pulverized, unburned, carload minimum weight 60,000 lbs., from Greencastle, Ind., to Memphis, Tenn., $3.83 in open-top cars and $4.32 in closed cars, including ExParte 162-B, 166-C and 168-A increases. Reason: On same basis as rates applying from and to other points.

Bulletin G-963—Stone, crushed, having value for construction purposes only and not suitable for agricultural or chemical purposes, in bulk, in open-top cars, carloads, minimum weight 90 percent of marked capacity of car used, from Greenfield and Thrifton, O., to Baileysville, W. Va., $2.67 per net ton, including ExParte 162-B, 166-C and 168-A increases. To expire June 30, 1950. Reason: On same basis as rates applying from and to other points.

Bulletin C-970—Limestone, ground or pulverized, unburned, carload minimum weight 60,000 lbs., from Greencastle, Ind., to Lexington, Ky., $2.98 per net ton, in open-top cars and $3.48 per ton in closed cars, including ExParte 162-B, 166-C and 168-A increases. Reason: On same basis as rates applying from and to other points.

1. Slip the pin through the clevis and chain
2. Spread the cotter

...and you're ready to put this grab hook to work!

It's a rugged, heat-treated drop-forged hook with a quick-fastening jaw that does away with shackling ... cold-shutting ... cutting, bending and rewelding chain.

Safer, too ... stronger than ordinary grabs, Laughlin's Clevis Grab Hook also has a forged housing that protects hands from cotter pin.

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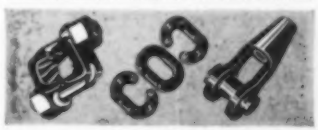

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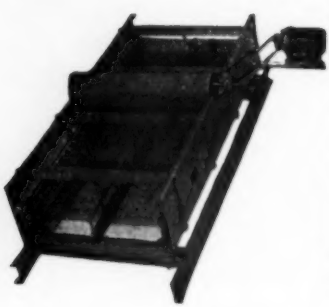


Write for your copy of catalog No. 109—32 pages on Screens and Screening.

UNIVERSAL VIBRATING SCREEN CO.
RACINE — WISCONSIN

Bulletin G-971 (Shippers) — Limestone, ground or pulverized, carload minimum weight 60,000 lbs., from Greencastle, Ind., to Portsmouth, Va., $5.76 per net ton, in open cars and $6.26 in closed cars, including ExParte 162-B, 166-C and 168-A increases. Reason: On same basis as rates applying from and to other points.

Bulletin G-972 (Shippers)—Sand (except sand, moulding, bonded — naturally or otherwise — and except ground or pulverized sand), or gravel, in open-top equipment, without tarpaulin or other protective covering, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible or cubical capacity, actual weight will apply, from Columbus, O., to McKeesport, Pa., $2.31 per net ton, including ExParte 162-B, 166-C and 168-A increases. Reason: On same basis as rates applying from and to other points.

Bulletin G-1021—Stone, crushed, having value for construction purposes only, and not suitable for agricultural or chemical purposes, in bulk, in open-top cars, carloads, minimum weight 90 percent of marked capacity of the car used, from Greenfield and Thrifton, O., to West Hamlin, W. Va., $2.31 per net ton, including ExParte 162-B, 166-C and 168-A increases. Reason: On same basis as rates applying from and to other points.

ILLINOIS FREIGHT ASSOCIATION DOCKET

Docket IRC 511-898—Crushed stone or agricultural limestone, in open-top cars, carloads, from Thebes and Olive Branch, Ill., to St. Louis, Mo., minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. Present: No rate in effect. Proposed: 135 cents per ton of 2000 lbs. (not subject to further increases).

WEEKLY DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION SUBMITTALS

Docket A-2061 (b)—Sand, gravel, to Norfolk, Va., from Graypit, N. C., 100 cents. Crushed stone to Norfolk from Lassiter, N. C., 120 cents; from Rockton and Neverson, N. C., 110 cents net ton, not subject to X-162-166-168 increases.

FREIGHT TRAFFIC COMMITTEE TRUNK LINE TERRITORY RAILROADS

Docket T.L. 282 — Crushed stone, uncoated, carload minimum weight 90 percent of marked capacity of car from LeRoy, N. Y., to following points: Lawrenceville, Tioga, Mansfield, Canoe Camp, Covington, Blossburg, Coaland, and Morris Run, Pa., including ExParte 162-B, 166-C but subject to 168-A increases, in lieu of present rate of $1.63. Proposed: $1.47 per net ton. Reason: To meet competition of other modes of transportation.

Docket T.L. 302—Dolomite, roasted (refractory dolomite) in granular form, treated or untreated, clinkered and/or burned to a dead state, carload minimum weight 90 percent of marked capacity of car, etc., from Billmyer, Pa., to Harrisburg, Pa., $1.45 and to Coatesville, Pa., $1.95 per net ton, including ExParte 162-B, 166-C and 168-A increases. Reason: To meet competition of other modes of transportation.

WESTERN TRUNK LINE NEW APPLICATIONS

Docket E-41-1140 (Shipper) — Stone, crushed, rip rap, etc., minimum weight 90 percent of marked capacity of car, except that when cars are loaded to full visible capacity, actual weight will apply, but not less than 40,000 lbs. From origins in Iowa to destinations in Nebraska. Proposed: Distance scale of rates, ranging from 33 cents for single line application for five miles to 176 cents for 350 miles and 26.4 cents for joint line application for five miles to 120 cents for 250 miles. For shipment of ten cars or more rates are to be made on 80 percent of the proposed scale.

U. S. 1948 Potash Output Passes 2-Million-Ton Mark

New records were made in 1948 in the potash industry of the United States; both production and sales of marketable potassium salts reached new highs, according to reports of producers to the U. S. Bureau of Mines. Production in 1948 was 2,138,493 short tons of potassium salts containing 1,139,881 tons to equivalent potash (K_2O). This was an increase of 232,717 tons of potassium salts over 1947, and 110,006 tons of K_2O, a greater increase than 1947 showed over 1946. The production of marketable potassium salts in the United States has increased each year since 1934. Sales (2,148,807 short tons) were 195,500 tons greater in 1948 than in 1947, and contained 1,143,339 tons K_2O. The value of the sales increased to nearly 36 million dollars. The average value per ton of potassium salts sold was again less than in the immediately preceding year, according to reports from producers, declining from $17.77 in 1947 to $16.75 in 1948.

Stocks of potassium salts in producers' hands at the end of 1948 were lower than on December 31, 1947. Imports of potash fertilizer materials decreased very slightly in 1948, and exports increased to a slight extent; both imports and exports of potash materials for chemical uses increased in 1948. Domestic consumption of potash made a new record, apparent consumption of potassium salts passing the 2-million-ton mark, with an equivalent K_2O content of 1,100,787 short tons in 1948.

The Western states' production remains the dominant factor in the domestic potash industry. California, New Mexico, and Utah furnished virtually all of the 1948 output, the larger part coming from the sylvite and langbeinite deposits of the Carlsbad region of southeastern New Mexico. The Central and Eastern states supplied only a small quantity—from well brines in Michigan and as a byproduct of cement operations in Maryland.

Talc mining throughout the United States is largely by underground operations, although several of the soapstone sources in California's Sierra foothills belt are open cuts.

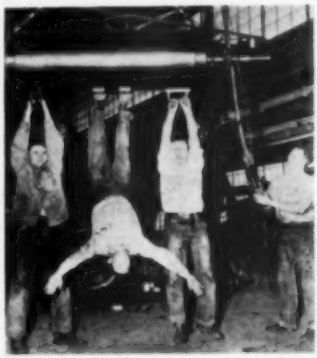
Pennsylvania Glass Sand Corp. Installs Huge Magnetic Pulley

What is believed to be the world's largest magnetic pulley employing Alnico, designed and constructed by Dings Magnetic Separator Company, Milwaukee, Wis., was recently shipped to the Pennsylvania Glass Sand Corporation at Hancock, W. Va. It will be employed to remove iron impurities from sand used in the manufacture of glass.

The pulley is 24 in. in diameter and 60 in. wide. Its weight of 2,200 lbs. includes 1,500 lbs. of Alnico, the largest amount ever used in a piece of equipment, according to Dings' executives.

A permanent magnet (no external energization from direct current power supply is needed), the Alnico casting is magnetized by heavy currents of short duration reaching peaks in the vicinity of 100,000 amperes. After complete magnetization, the pulley is ready for operation with no subsequent loss of magnetism.

Alnico, a General Electric development, is an aluminum- nickel- cobalt-iron alloy of permanent magnetic stability constant to within a few hundreths of 1 percent per century when properly manufactured. Its energy content after magnetization is rated at 10 to 100 times greater than that noted in "permanent" magnets of a few decades ago.



• A realistic test of the jumbo magnet at the Pennsylvania Glass Sand Corp. plant.

Bulletin on Slag Production Issued by U.S. Mines Bureau

Iron blast-furnace slag, once considered a waste product of the iron and steel industry, in recent years has been developed into a useful raw material and now is widely used in road construction, for railroad ballast, an aggregate in concrete, and for other purposes.

A Bureau of Mines bulletin recently released is the first comprehensive summary of information published in the English language of the production, processing, and uses of iron blast-furnace slag. The bulletin was published by the Bureau in cooperation with the National Slag Association of Washington, D. C., which supplied technical data and other information, according to Bureau Director James Boyd.

The development of commercial markets for iron blast-furnace slag in the United States has been rapid in the last 20 years, although this "waste" material was used for road construction and for ballast in this country in the early part of the century, the report discloses. Some foreign countries are reported to have used slag for various purposes much earlier.

During 1947, when 32,284,000 tons of slag were produced as a by-product of the iron and steel industry in this country, approximately 19,582,000 tons or about 61 percent, valued at nearly $19,526,000, was used commercially, the major tonnages going into highway construction and railroad ballast. Of the total produced in 1947, 27 percent was used in roads and streets other than in concrete and bituminous work; 22 percent was used in bituminous construction; and railroads used 21 percent for ballast. Nine percent was used in concrete block and other concrete products; 8 percent in portland-cement-concrete construction; 5 percent in cement manufacture; 2 percent for roofing materials; and 6 percent for other purposes.

In the United States, a total of 62 plants for processing iron blast-furnace slag produce four general types of commercial slag: screened air-cooled, used chiefly as aggregate and for railroad ballast; unscreened air-cooled, employed principally in base courses for roads and as a fill material; granulated slag, for filling purposes in highway pavement base courses and in the manufacture of cement; and lightweight slag, used in molded concrete products.

Most of the commercial slag is used in solid form, but it also serves as a chemical or ceramic raw material in the production of mineral wool and cement, as well as in the making of some types of glass, in ceramic ware, and in soil treatment to reduce soil acidity, improve physical characteristics of soils and furnish essential plant nutrients.

The history and development of the slag industry, as well as the production and processing of iron blast-furnace slag are described in detail in the Bureau bulletin, which also discusses the chemical and mineralogical composition of iron blast-furnace slag, its physical properties, and specific uses. More than 100 illustrations and a comprehensive bibliography containing more than 550 references are included. Appendices cover materials required for slag concrete, slag mortar, and asphalt concrete, specifications and methods of testing slag, miscellaneous test procedures, and tables. The report was prepared by G. W. Josephson, chief of the Nonmetal Economics Branch; F. Sillers Jr., senior metallurgist; and D. G. Runner, commodity specialist, all of the Washington, D. C., staff of the Bureau of Mines, with the assistance of the Problems Committee of the National Slag Association.

Copies of Bulletin 479, *Iron Blast-Furnace Slag: Production, Processing Properties, and Uses*, may be obtained only from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 75 cents each (paper covers). This bulletin is *not* sold or distributed by the Bureau of Mines.

Single copies of this bulletin, in special bound buckram covers, are available (so long as the supply lasts) to all those interested in the use of slag, upon request to the National Slag Association, 644 Warner Building, Washington 4, D. C.

U. S. Clay Industry Reports New Records of Production

New records were made in the clay mining industry in 1948, according to reports of producers to the U. S. Bureau of Mines. The total clay output rose 12 percent in 1948, as compared with 1947. New highs were established in kaolin, ball clay, fire clay, bentonite, and fuller's earth.

Clay consumed in the manufacture of heavy-clay products was 10 percent greater than in 1947, and comprised 56 percent of the total tonnage (37,727,981 short tons). Common clay or shale accounted for 84 percent of the total used in heavy-clay products.

Clays used in refractories and in Portland and other hydraulic cements each totaled about 17 percent of the tonnage. About 2 percent was consumed by the paper industry as filler and coating, and 1 percent each in rotary drilling mud, filtering and decolorizing oils, and in pottery. The remainder was consumed in a variety of other uses.

Rotary drilling mud showed a 24 percent gain over 1947; cement, 19 percent; paper filler and coating, 12 percent; refractories, 11 percent; filtering and decolorizing oils, 9 percent; pottery, 7 percent; and high-grade tile, 6 percent.

The largest proportional increase in output in 1948 over 1947 was for bentonite (21 percent). The smallest ratio of increase was for fuller's earth (4 percent). Fuller's earth output in 1948 surpassed a record of 18 years standing by 2 percent.

Imports of English china and blue clays into the United States increased substantially in 1948. Total exports of clays remained at approximately the same level in 1948 as in 1947, although average values per ton rose somewhat.

Funkhouser to Process Mica From New Georgia Deposit

The Funkhouser Company, which for many years has been a producer of slate granules and slate flour at Fairmount, Ga., has completed installation of milling and mining equipment near Hartwell, Ga., to mine and prepare scrap mica for the trade.

This kind of mica is used to considerable extent in the manufacture of asphalt roofing. The company's mill will have a capacity of 100 tons per day. The mica is ground to extreme fineness in flake or grain size to be used in the manufacture of paint and wallpaper. Funkhouser contemplates expanding its milling operation to a point where fine-grinding may be done in order to supply this special type of mica.

GMCs "Deliver the Goods"

Food, furniture and fuel oil . . . the tree, the turkey and the toys . . . almost everything that moves by motor truck makes its contribution toward a Merry Christmas.

Total truck tonnage has increased 120 percent in the past ten years and GMC has been a pacemaker in this rapid rise in truck transportation. Now better equipped to "deliver the goods" than ever before, tough, truck-built GMCs offer powerful, valve-in-head gasoline engines or famed, 2-cycle Diesel models . . . strong, sturdy chassis with rugged axles, springs and brakes . . . big, wide-vision, easy-riding cabs . . . outstanding performance and dependability, unexcelled efficiency and economy.

There's a better-built GMC for all hauling jobs . . . for every transportation task . . . Christmas time and all the time!

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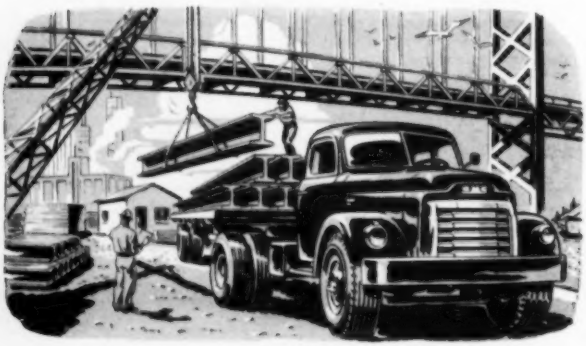

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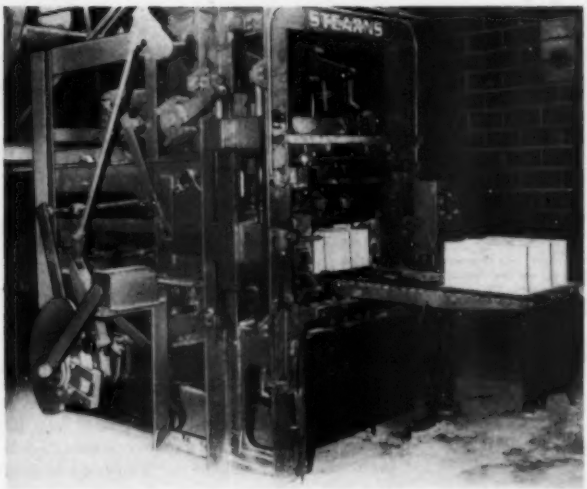
New construction is a "Christmas present" for the entire nation. GMC's complete line, ranging from Pickups to big brutes of over 90,000 pounds GCW, is completely capable of performing every hauling job in the construction industry.

THE CONCRETE MANUFACTURER

A SPECIAL SECTION OF PIT & QUARRY



NEW!

Stearns 50 2-AT-A-TIME CONCRETE BLOCK MACHINE

MORE PRODUCTION PER MACHINERY DOLLAR!

The enthusiasm of old timers for the new Stearns 50 Two-at-a-Time, Plain Pallet, Concrete Block Machine proves it to be another Stearns *first.* The best features ever used in famous Stearns machines are incorporated in the 50—plus many new developments based on exhaustive research and skilled engineering.

Stearns' Revolutionary Dual Shaft Uni-Directional Vibration — rugged construction — every part readily accessible—anti-friction bearings—fully automatic split cycle operation—finest electrical equipment—positive height control—more production per machinery dollar. Here, old timers say, is the finest two-at-a-time concrete block machine ever to appear on the market! They know!

MODERNIZE WITH A STEARNS!
BACKED BY MORE THAN A
QUARTER-CENTURY OF KNOW-HOW!

STEARNS MANUFACTURING COMPANY INC
ADRIAN • MICHIGAN

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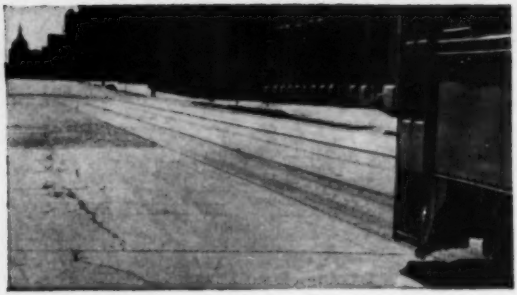
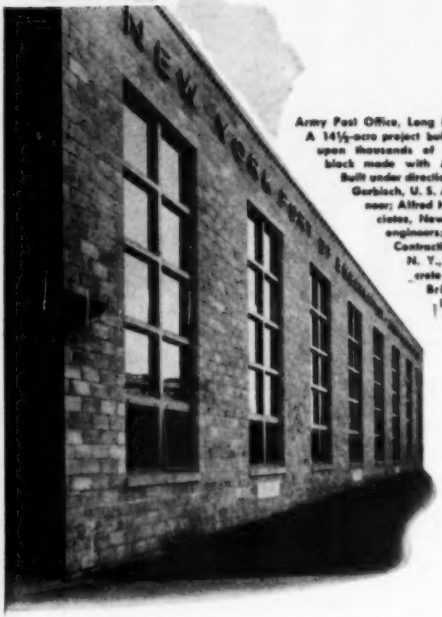


Ten Years Ago . . .

concrete made with Duraplastic cement got its first test. In August, 1939, this test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, *laid at the same time*, was made with Atlas Duraplastic—the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of ten Minneapolis winters and to heavy applications of de-icing salts, are shown just as they appeared in July, 1949—convincing proof of the durability and lasting good appearance of Duraplastic concrete. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.

Today . . . . Manufacturers rely on DURAPLASTIC* for superior concrete products



Army Post Office, Long Island City, N. Y. A 14½-acre project built with thousands upon thousands of superior concrete block made with Atlas Duraplastic. Built under direction of Col. Edgar W. Garbisch, U. S. Army District Engineer; Alfred Hopkins and Associates, New York, architects-engineers; John A. Johnson Contracting Corp., Brooklyn, N. Y., contractors; concrete block by National Brick Corp., Long Island City, N. Y.

Successful field performance during the past ten years on a variety of paving and structural jobs consistently proved that Atlas Duraplastic made better concrete at no extra cost.

Noting this, more and more manufacturers of concrete products began to use Duraplastic for concrete block, brick, pipe, drain tile, silo staves and other products.

Today, for machine-made products, like the block shown here on this tremendous Army Post Office job, manufacturers find they can use a damper mix—one that's more cohesive, holds together better and feeds easily through machines. Finished units are more compact and exhibit greater resistance to passage and absorption of water. Appearance and face texture are generally improved. Edges and corners are clean-cut and truer.

To provide superior concrete products to meet the construction needs of today and tomorrow, use Atlas Duraplastic. It complies with ASTM and Federal specifications, calls for no unusual changes in procedure and costs no more than regular cement.

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Phila., Pittsburgh, St. Louis, Waco.

PG-D-95

ATLAS DURAPLASTIC

TRADE MARK REG. U. S. A. C. CO.

AIR-ENTRAINING PORTLAND CEMENT

MAKES SUPERIOR CONCRETE PRODUCTS AT NO EXTRA COST

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

NEWS OF CONCRETE MANUFACTURERS

Sakrete Producers Meet To Discuss Problems Of Industry at Asheville

A meeting of licensed Sakrete producers was held at Grove Park Inn, Asheville, N. C., on September 28 and 29. In attendance were executives of various companies manufacturing Sakrete for distribution in all states east of the Mississippi and in Texas, Washington, and southern California.

The afternoon session on September 28 was under the chairmanship of Albert Cummins of the Harry T. Campbell Sons Corporation, Baltimore, Md., and was confined to a discussion of manufacturing problems, warehousing, and machinery maintenance. Charles Steaman of the Raymond Bag Company presented the solution of bag storage and carloading problems. Later a review of research work being done by Sakrete, Inc., for the benefit of all Sakrete licensees was presented by A. C. Avril, Sakrete's president, under whose patents all licensees are operating. A description of the new products being tested by Harry T. Campbell Sons Corporation was given by Albert Cummins, manager of their Sakrete Division.

All members of the group were Mr. Avril's guests for dinner on Wednesday evening. Fayette Cloud was master of ceremonies.

On Thursday, September 29, the meeting was under the chairmanship of Fayette Cloud, of the W. R. Bonsal Co., Lilesville, N. C. This meeting was devoted to freight rates, marketing methods, and advertising.

H. V. Fleming, of Charlotte, N. C., a freight rate specialist, pointed out the many problems in dealing with the railroads in obtaining suitable freight rates. He informed the group on various ways in which the problem could be approached.

A talk on marketing methods by Albert Cummins, manager of the Sakrete Division of Harry T Campbell Sons Corp., was presented in a concise and able manner.

Representatives of several advertising agencies presented discussions on market analysis and various means of advertising to yield the best results in reaching the consumer market.

Lee Hoffman, advertising specialist of Baltimore, presented a complete market analysis showing how each marketing area was studied in order to establish proper methods of sales, advertising, and distribution. James Wolfe, also of Baltimore, presented a concise and instructive paper on different advertising media, both local and national in scope, covering the elements of cost, reader or listener interest, and the unit advertising cost expectancy for the various advertising media.

Ralph Hess of Cincinnati covered the advertising problem from the standpoint of a selective market, outlining a program of cooperative producer-dealer advertising. A general discussion followed in which it was proposed that a national advertising program for the benefit of both dealer and consumer be launched in 1950. All licensees will participate in this proposed program.

Final plans for this project will be laid at a meeting scheduled for January, 1950. All members of the group, realizing the advantages of a national advertising program, concurred in the idea that since Sakrete is now marketed in an area serving more than 70 percent of the population of the United States, a national advertising program is in order.

Perma-Tile to Be Produced In Pacific Northwest Cities

Three new plants have just been opened in the Pacific Northwest for the manufacture of Perma-Tile concrete roofing tile.

Shipments of new semi-automatic Perma-Tile machines and pallets to A. G. Homan, Olympia, Wash.; Wm. S. Johnson, Portland; and Clyde Sipes, Seattle, have been announced by Fank J. Hart, head of the Perma-Tile Concrete Products Co., San Bernardino, Calif., which makes and markets the new equipment.

The owners of the new machines have already gone into production in their respective communities. Rated capacity of each machine is 350 tiles per hour.

Coming Events

January 15-19, 1950 — Chicago. 31st annual meeting, Associated Equipment Distributors, Stevens Hotel.

January 23-27, 1950 — Chicago. 20th annual convention and exhibit, National Ready Mixed Concrete Association, Stevens Hotel.

February 6-9, 1950 — Chicago. 30th annual meeting, National Concrete Masonry Association, Hotel Sherman.

February 22-24, 1950 — San Francisco. 42nd annual convention, American Concrete Pipe Association, Hotel Fairmont.

S. California C.M.M.A. Gets Results of Survey On Masonry Homes Cost

Does a concrete-masonry house cost more or less than comparable frame construction, or about the same?

In an attempt to get factual information, a comprehensive questionnaire-survey of persons who actually built concrete-block homes was recently completed by the General Engineering Service Company, Los Angeles. Average cost—$7.36 per sq. ft. of house area—was found to be almost identical with the cost of wood-frame construction. About one-third of the replies came from outside California, but costs ran about the same, indicating that geographic location did not influence results.

The facts were revealed on October 13 at the monthly dinner meeting of the Concrete Masonry Manufacturers' Association of Southern California, held in Rodger Young Auditorium. Highlighting the gathering was the presence of a group of past presidents and other members of the National Concrete Masonry Association, who spent several days in the Los Angeles area on a swing around the country. The group, headed by Executive Secretary E. W. Dienhart, has been inspecting concrete masonry structures and block plants and has been meeting with local and regional promotional groups in the various cities visited. Those present at the Los Angeles meeting included President H. L. Spaight; Geo. W. Katterjohn (Paducah); Fred Reinhold (Buffalo); C. E. Swanson (Kansas City); Dean Lynde (Denver); H. F. Geist (Cleveland); Harve Kilmer (Des Moines); Benjamin Wilk (Detroit); and Horace Bush (E. Orange, N. J.).

Each of the visitors made brief remarks, after which Mr. Dienhart spoke at length on the activities of the national association, past, present, and future. He outlined some of the early struggles for recognition of concrete masonry, traced the growth of the industry to its present pre-eminent position in the masonry field, and touched upon some of the research and technical effort currently being carried on for the benefit of the entire industry.

After the Los Angeles gathering, the group had one more scheduled meeting —at Salt Lake City—before ending its national tour.

At Drumright, Okla., the Hughes Concrete Company has established a new ready-mixed concrete plant with a capacity of 250 cu. yds. per 8-hr. day. Ready-mix is delivered in five trucks. The plant is under the management of R. J. Brackey.

N.C.M.A. Directors' Party Inspects Strestcrete At Basalt Rock Co. Plant

On October 11 the directors of the National Concrete Masonry Association and leading concrete block manufacturers of the country visited the Basalt Rock Company's plant at Napa, Calif., on their scheduled tour of the Western states. The main purpose of the visit to the Basalt plant was to obtain first hand information on Strestcrete roof and floor construction, recently introduced by Basalt Rock Company, which has created widespread interest in the concrete masonry field.

Visitors watched with interest the complete assembling and placing of roof and floor slabs, and tongue and groove siding. They inspected the building, in which the same material had been used as part of the construction of the columns and beams. They also saw craneways supported on Strestcrete columns, and grain bin and silo construction utilizing Strestcrete radius units.

The party making the trip to Napa included Harold L. Spaight, N.C.M.A. president, Executive Secretary E. W. Dienhart and Mrs. Dienhart, Mr. and Mrs. H. W. Bush, P. M. Woodworth, Mrs. Hazel Ehle, Mr. and Mrs. D. R. Lynde, Harve E. Kilmer, Philip Paolella, Benjamin Wilk, Harvey Lee, Otto Buehner, Mr. and Mrs. G. W. Katterjohn, Mr. and Mrs. F. W. Reinhold, Herbert F. Geist, Mr. and Mrs. C. E. Swanson, and Mr. and Mrs. G. F. Steigerwalt. A. G. Streblow, president of Basalt Rock Company and West Coast member of the board of directors of the N.C.M.A., was host for the day.

• Watching the assembly of Strestcrete roof and floor slabs at the Basalt Rock Company's plant at Napa, Calif., are (left to right): C. E. Swanson, F. W. Reinhold, P. M. Woodworth (behind Mr. Reinhold), D. R. Lynde, A. G. Streblow, E. W. Dienhart, Harve E. Kilmer, Harold L. Spaight (N.C.M.A. president), Harvey Lee and G. F. Steigerwalt.

• D. R. Lynde (left) and Otto Buehner look over the installation of the new precision grinder in the Strestcrete division of the Basalt Rock Company's plant at Napa, Calif.

N.R.M.C.A. Publishes Bulletin On Truck Mixer Standards

A recent publication released by the National Ready Mixed Concrete Association is a pamphlet on the truck mixer and agitator standards of the Truck Mixer Manufacturers Bureau, as revised for the second time.

The only fundamental changes involve the provision of three additional (larger) sizes of the open-top type of mixer. The booklet designates standard sizes—five for each type of truck mixer, rotating drum and open-top type. Members of the Truck Mixer Manufacturers Bureau are as follows: the Blaw-Knox Company, the Chain Belt Company, the Concrete Transport Mixer Company, the Jaeger Machine Company and the Ransome Division of the Worthington Pump and Machinery Corporation.

North Carolina Block Plant Damaged in $30,000 Fire

A fire which resulted in a $30,000 loss laid in ruins most of the facilities of the Carolina Concrete Block Company near Raleigh, N. C., on September 23.

The blaze, of undetermined origin, destroyed the building, much equipment for making concrete and cinder block, and two trucks. The plant was not in operation when the fire was discovered, as it had closed for the day shortly before. G. D. Slack is the owner and operator of the business.

Honorable Mention Given Eight Concrete Concerns In '49 Safety Contest

Final results of the 1949 National Ready Mixed Concrete Association safety contest, including details of production records achieved by eight runners up, have been released by the association. As announced in the November issue of PIT AND QUARRY (p. 178), the top billings were merited by Kuert Concrete, Inc., South Bend, Ind. (Class A), and Modahl and Scott, Inc., Bloomington, Ill. (Class B).

Eight other companies in the smaller plant competition also had accident-free records. Following the policy established by the N.R.M.C.A. safety committee before last year's contest, the company with the greatest combined total of cubic yards of concrete produced and manhours worked receives the higher rating in case of identical scores. Nevertheless, the following eight companies with accident-free records are entitled to honorable mention: Builders Concrete, Inc., Muncie, Ind.; The Trumbower Company, Nazareth, Pa.; Mesaba Construction Company, Hibbing, Minn.; Randecker Brothers Company, Lock Haven, Pa.; Wolf Ready-Mixed Concrete Company, Logansport, Ind.; Grand Junction Building Materials Company, Grand Junction, Colo.; Grand Haven Ready Mix Concrete Company, Grand Haven, Mich.; and Portland Sand and Gravel Company, Portland, Pa.

Additional recognition is due in the case of each of these firms—The Trumbower Company, Mesaba Construction Co., and Grand Haven Ready Mix Concrete Co. for accident-free records for two consecutive years; Grand Junction Building Materials Co. for its accident-free records for three consecutive years. The Grand Junction Building Materials Co. was the winner of the 1947 Class B competition and Mesaba Construction Co. was the winner of the 1948 Class B competition.

This year 104 companies submitted reports, 13 more than in 1948. These 104 concerns produced 9,071,651 cu. yds. of concrete in 12 months.

Dolly Gray Taken by Death At Indianapolis on Nov. 6

C. (Dolly) Gray, president and owner of the Ready Mixed Concrete Corporation, Indianapolis, Ind., and a past president of the National Ready Mixed Concrete Association, died at his home in Indianapolis on November 6. He was 63 years old.

Mr. Gray was a graduate of Rose Polytechnic Institute, which he later served as a trustee and a member of its board of managers. During World War I he attained the rank of captain in the Corps of Engineers. He was chief engineer of the Indiana State Highway Commission from 1920 to 1925.

We Stand Corrected— Let's Get It Straight About Those "Firsts"

Two months ago the CONCRETE MANUFACTURER carried a news story about a new concrete products plant in Anchorage, Alaska, described as the "first Alaska products plant." Since then we've learned that it is merely *one* of the first. This letter tells how we learned of our slip:

Dear Sir:

In your October issue I saw a very enlightening article on page 128, telling us that the first products plant had just been put in operation in Alaska. . . .

I came to Anchorage in 1936. *At that time* G. E. Krause was operating a cement products plant in Juneau, making both building blocks and concrete sewer pipe. . . .

In 1940, in answer to several letters from your good magazine, *I wrote an article describing our operations,* for which I received a very much unexpected check. I took my crew out to dinner, and I believe it cost me about $20 beside the check.

That same year (1940) I brought the first transit mix unit to Alaska. It was a 2-cu. yd. Rex Mixer mounted on a Mack truck. (This unit is still a part of our fleet.) About that same year G. E. Krause started a products plant in Anchorage, installing a new Tuerck & Mackenzie Company pipe machine and making pipe up to 24 in., besides building, footing and chimney block, etc.

In 1945 my son, Roger Waldron, and Jack Harrison started the Cinder Concrete Products Company, manufacturing cinder and concrete building and chimney blocks and also bricks.

Last year we combined the Anchorage Sand & Gravel Company and the Cinder Concrete Products Company under the firm name of the Anchorage Sand and Gravel Company, Inc. We own a Lith-I-Block block machine and manufacture cinder, pumice and concrete building blocks.

I suggest that you come up some time and get acquainted. . . .

Yours very truly,

Arthur F. Waldron, General Manager
Anchorage Sand and Gravel Co., Inc.

• The above picture, enlarged from an actual "March of Time" movie on farming, shows a concrete stave silo under construction. The stave units and the erection crew were supplied by the Marietta Concrete Corporation of Marietta, O. This fortunate conjunction of events added up to a great deal of fine publicity for the concrete stave industry.

We're sorry that we were careless with our "firsts." We had no intention of offending an old friend or of upsetting the sequence of events in Alaska's concrete industry. But Anchorage is so far away. . . . Perhaps we should take a run up there and look the situation over.

But that wasn't all! A few days later Protest No. 2 arrived. G. E. Krause, mentioned by Mr. Waldron in his letter, wrote to us in the same vein. He enclosed a newspaper advertisement which listed an impressive roster of products and contained the line, *"Established since* 1912."

Mr. Krause writes that with the advent of World War II the Army took over all the machinery and equipment in the Juneau plant and moved them to an Army installation. The Juneau plant was later sold, and the company's full effort is now concentrated on its Anchorage facilities.

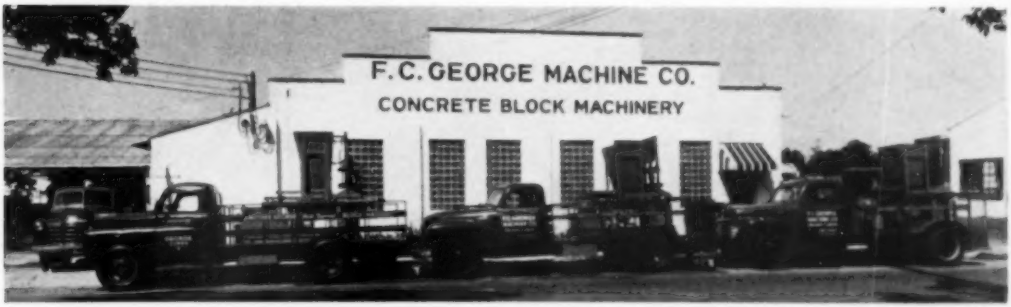
Thank you, Mr. Krause, for setting us straight. At this point we congratulate *all* Alaskan products manufacturers and extend to all our impartial wishes for future success.

Revised Edition of Work On Concrete Now Available

Plain Concrete by Edward E. Bauer, associate professor of civil engineering, University of Illinois. In the third edition of this well-known textbook and laboratory manual all information has been brought up to date, and material on cement has been revised in accordance with new specifications and methods of designating portland cements of the A.S.T.M. The work contains excellent discussions of the various theories of proportioning; factors affecting concrete strengths; and the making, placing and curing of concrete. The effects of cement, water and aggregates on durability, workability and waterproofness are thoroughly explored.

Published by The McGraw-Hill Book Company, 330 West 42nd Street, New York 18, N. Y. Price, $5.00.

P. Y. K. Howat, president of Howat Concrete Co., Inc., Washington, D. C., was installed recently as president of the Washington Building Congress.



• Visual demonstration to confirm the written advertising word is the idea employed by the F. C. George Machine Company, Orlando, Fla., in the demonstration of their Series 400 concrete block machines, which produce both conventional and redi-furred concrete blocks. The F. C. George Company has a fleet of trucks, of which the three pictured above are typical, operating east of the Mississippi. Upon request to the company, the truck is driven to the plant to manufacture blocks with the producer's own aggregate.

Material Service Corp. Introduces Ready-Mix To Chicago Market

The Material Service Corporation, Chicago, Ill., announced on November 17 that it had entered into the production of ready-mixed concrete in the city of Chicago on a large scale. Col. Henry Crown, chairman of the board of directors, stated that half a million dollars has already been spent to set up a ready-mixed department and to purchase 50 truck mixers, and that an equal amount has been invested in other new equipment. This represents the beginning of a program which will require a 4- to 5-million-dollar investment. Central-mixing plants with 6-cu. yd. mixers will be erected at ten of the corporation's yards in the Chicago area, eight of them inside the city limits. Each will have a capacity of 1000 to 1200 cu. yds. daily. A fleet of 200 truck mixers of 6-cu. yd. capacity will eventually serve these plants.

Actual production of concrete in Chicago by the Material Service Corporation began on November 16, when 625 cu. yds. were delivered to a construction project in the downtown area. This concrete was batched into truck mixers from a dry batching plant at one of the corporation's yards. Actual production of plant-mixed concrete will begin early in 1950, when three of the ten new central-mixing plants are scheduled to go into operation.

The corporation will deliver only laboratory-approved concrete, three of the largest private testing laboratories in Chicago having been engaged to insure the quality of the concrete produced.

Material Service Corporation, already one of the largest producers of sand, gravel, and crushed stone in the country, several years ago installed a central mixing plant at Lockport, Ill., as a test installation before going ahead with its present program. The corporation operates 15 plants in Illinois, Wisconsin, Indiana, and Missouri, producing crushed stone, sand and gravel, agricultural limestone, lime and roasted dolomite. It also operates 24 material yards, 20 of them in the city of Chicago.

Col. Henry Crown, chairman of Material Service Corporation, is also active in many other fields, being executive vice-president of the Hilton, Mayflower, and Waldorf-Astoria Hotel Corporations, and a director of the Rock Island Railroad.

U. S. Senate, House Chambers To Have Permalited Supports

"Permalite" perlite plaster is being used to fire-protect all of the structural steel roof supports in both the Senate and the House Chamber of the capitol at Washington, D. C. The last session of Congress met in other quarters during the renovation, which is scheduled for completion on January 1, 1950.

Two carloads of Permalite plaster aggregate, supplied by the Great Lakes Carbon Corp., will be used in completing the fireproofing of the Capitol. This amounts to 8,000 cu. ft. of aggregate. Permalite aggregate is mixed with gypsum and water to make plaster. No sand is used.

In the process of fireproofing the structural steel roof supports, wire lath is tightly tied around the steel. A first or scratch coat of Permalite is then applied. After this is dry, a second or brown coat of Permalite is applied. The total thickness of the plaster is approximately 1¼ in.

Fireproofing structural steel with Permalite is a relatively new method which has been receiving widespread notice in the building field. The use of Permalite results in costs considerably below those of standard building practice because of the weight elimination in both the structural steel members and the fireproofing material, which is usually solid concrete.

Permalite is made from volcanic perlite rock which is found in great abundance in the western part of the United States. After mining, crude perlite ore is granulated and then expanded by heat. The end product, because of its light weight and exceptional fire resistance, is being used successfully to fireproof structural steel columns and beams in many major buildings throughout the United States.

G.L.C. quarries its crude perlite ore in Socorro, N. M., and controls other large deposits of perlite in Arizona and elsewhere in New Mexico.

• Left to right: J. W. Moorhead, Great Lakes Carbon Corp., Congressman A. M. Fernandez, Sen. C. P. Anderson and Congressman J. E. Miles, inspecting a "Permalited" steel beam.

Highway Concrete Pipe, Inc. Thriving Kentucky Concern

One of the newer industries of Mount Sterling, Ky., is Highway Concrete Pipe, Inc., whose chief product is pipe for street and road construction.

The plant is located on the C. & O. Railroad and has its own siding. Present capacity is 200 joints per day, depending upon the size. With the modern equipment and machinery provided, the crew can turn out pipe ranging from 15 to 54 inches in diameter. Officers of the company are as follows: R. J. Reynolds, president; Esther B. Clay, vice-president; and William C. Clay Jr., secretary-treasurer.

Birmingham Slag Building New Concrete Facilities

New facilities to supplement production of concrete at the Birmingham Slag Company's plant will occupy a full block and will include an office building, two cement tanks and four-compartment bins for sand and slag. There will also be a weigh-batcher.

The new setup will serve the downtown, south and east sections of Birmingham, while the original plant at Fairfield will serve the western area.

Sherman B. Vandervoort, 68, co-founder of the Hollow Stone Company of Jamestown, N. Y., manufacturers of concrete block, died on October 11 of a heart attack. Several years after establishing Hollow Stone, Mr. Vandervoort purchased the interest of Walter Griggs in this industry and incorporated it as the Vandervoort Supply Company.

• This view of the Capitol shows construction work during the "Permaliting."

New England Regional A.C.I. Meeting Attended By 400 from Boston Area

More than 400 architects, engineers and contractors, together with students in these and allied fields from colleges and universities of the Boston area, attended the New England regional meeting of the American Concrete Institute on November 10 and 11 in the Hotel Kenmore in Boston.

H. L. Kennedy, a director of the institute and an architect for the Dewey and Almy Chemical Co., was chairman of the luncheon session. C. H. Scholer, head of the department of applied mechanics at Kansas State College, was the principal speaker at the first session, with Paul W. Norton, the second New England director of the Institute and a Boston structural engineer, serving as chairman. In speaking on *A Study in Concrete*, Professor Scholer outlined the technical advances being made in concrete construction and the rapidly expanding markets for and uses of concrete.

At the first technical meeting members heard reports on the highly successful concreting of the Ottawa Valley Project in Ontario and on the huge reinforced concrete hangar completed this summer for the United States Air Force at Limestone, Me., a building so large it will house planes even bigger than the B-36. The Limestone hangar was described by John E. Allen, chief of the engineering division for the Boston district of the United States Engineering division.

Reporting on the Canadian project were A. L. Malcolm and R. B. Young, assistant engineer and assistant director of research, respectively, of the Hydro-Electric Power Commission of Toronto, Ontario.

Other speakers at the two-day session included Hubert Woods, director of research for the Portland Cement Association; Frank H. Jackson, principal engineer of tests for the Bureau of Public Roads; Raymond E. Davis, director of the engineering materials laboratory at the University of California, Berkeley; and W. C. Voss, professor of building construction at M.I.T.

Effective November 1, 1949, the headquarters of the Ohio Sand and Gravel Association and the Ohio Ready Mixed Concrete Association will be located at the Huntington Bank Building, Room 630, Columbus, O.

Nebraska Crib and Silo Opens Kearney Branch As Business Expands

A branch of the Nebraska Crib and Silo Company, manufacturers of concrete stave silos and corn cribs at Fremont, Neb., is being established at Kearney, Neb., according to an announcement by R. C. Moore, president. The firm plans to expand production to include other concrete farm buildings.

The Kearney plant eventually will become a separate unit of the firm, President Moore stated, to serve an area east to Clarks, Neb., and all of western Nebraska north and south to the state lines.

A new business venture reported at Carrollton, Ky., is the Coo-Par Quality Concrete Company, which produces ready-mixed concrete. Owners of the business are Oscar Cook and Tom Parker.

Licensees of Sakrete east of the Mississippi and in Texas, Washington and southern California will hold a meeting in Cincinnati, O., on January 20 and 21.

Yale & Towne Mfg. Co. Opens New Chicago Center

Midwestern industrial and railroad executives numbering 1500 recently attended the special opening program of the new Chicago regional materials-handling sales and service headquarters established by the Philadelphia Division of The Yale & Towne Manufacturing Company, in a new two-story building erected for the purpose at 815 N. La Salle St., Chicago.

The occasion also served to introduce a series of new Yale hydraulically-operated devices that can be applied to standard industrial trucks which will permit them to handle any kind of material, liquid or bulk, in bags, boxes or barrels.

The demonstration of how this new equipment can help cut costs took place October 28 to November 10 in hourly programs each afternoon.

The new Chicago materials-handling center provides a complete spare parts and repair service that brings Yale & Towne's Philadelphia factory (where Yale hoists, trucks and scales are made) to within an hour of the industries in the Chicago area for emergency service, and within over-night service-time of Midwest plants located farther out in the greater Chicago trading area.

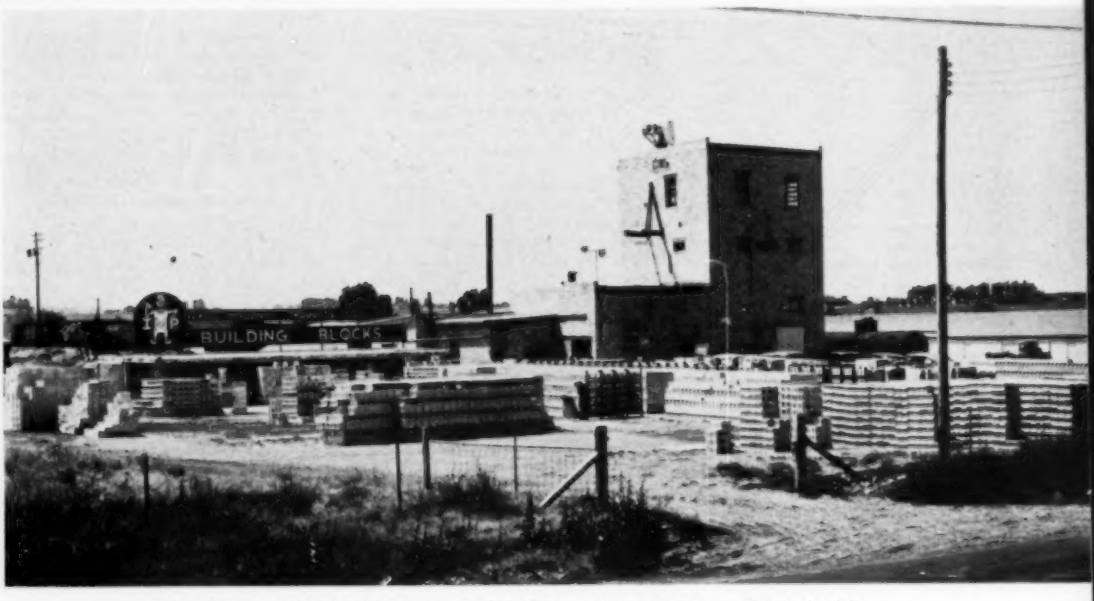
At the new center a staff of 33 factory-trained persons under the direction of Arthur H. Dobler, regional manager, handles sales engineering, repair maintenance and spare parts services. Roy L. Wolter is regional sales manager of industrial trucks and scales; Floyd A. Dewey is regional manager of hoists; Earl S. Thulin is head of the railroad department; and Richard A. Rieger is manager of the repair and spare parts service departments.

Outstanding among the new materials-handling machinery first displayed in Chicago are: the new line of Yale gas-powered fork lift trucks; the precision, air-operated drum filler, which automatically fills 52-gallon drums accurately within 6 ounces of desired weight, without the fire and explosion hazards commonly experienced with electrical equipment; a series of hydraulically-operated attachments that can be quickly mounted on standard lift trucks, including tilting scoop, open-end tilting hopper, drop-bottom hopper, clamping devices for handling various types of materials, and a device for pushing loads off pallets.

• The New Yale & Towne regional center at Chicago.

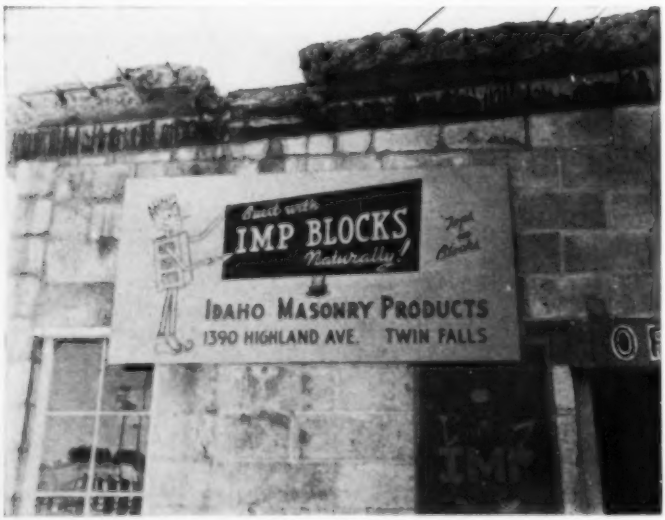
• R. A. Rieger, service department manager; R. L. Walter, sales manager, industrial scales and trucks; A. H. Dobler, regional manager; S. W. Gibb, general sales manager, Philadelphia Division; F. A. Dewey, regional manager, hoists.

Having used cinder from Idaho's "Craters of the Moon" region to manufacture block, W. L. Reiher has created a Disney-like character known as the "Imp" to do an excellent job of advertising for the Idaho Masonry Products Company.



• The plant and yard of the Idaho Masonry Products Company, home of the Imp, at Twin Falls, Idaho.

The Ubiquitous IMP *Of Twin Falls*



By HARRY F. UTLEY

another ON THE SPOT report

A CHARACTER who might have stepped out of a Walt Disney fantasy is doing an excellent job of merchandising concrete blocks out in Twin Falls, Idaho.

Dubbed the "Imp" by its creator, W. L. Reiher, head of the Idaho Masonry Products Co., who coined the word from the initial letters of the company name, the sprite with the concrete-block torso has been so well publicized that "Imp" and concrete block are practically synonymous in the Twin Falls area.

The "Imp" shows up everywhere—on the job signs, on company delivery trucks, in its newspaper advertising, direct-mail cir-

• One of the Imp signs used on buildings under construction throughout the area.

culars, letterheads, even on the machinery and equipment in the plant itself—striving always to proclaim the virtues of concrete block in general and Impstone pumice block in particular. His most recent job of advertising animation was a half-page insertion in a Twin Falls daily newspaper announcing that Impstone units had just been awarded the highest rating of the Underwriters' Laboratories. The advertisement, reproduced here, is a sample of the kind of job the company is doing, effectively utilizing the adventures of the "Imp" to put its sales story over.

The Idaho Masonry Products Co. was established a little over a year ago in Twin Falls by Mr. Reiher, who formerly had operated a block plant at Jerome, Idaho, using volcanic cinders obtained from the "Craters of the Moon" region as aggregate. Subsequently he acquired a 95-acre deposit of high-grade pumice at Iona, Idaho and this lightweight aggregate is being used exclusively at the Twin Falls plant.

The production machine installed in this very modern plant is a Lith-I-Bar vibrator which has a rated capacity of 400 units, 8- by 8- by 16-in. or equivalent, per hour. It has automatic feed of the plain pallets, is unusually quiet in operation, and has its off-bearing cycle reduced to one-half the production cycle for handling ease. Auxiliary equipment includes an air-operated off-bearing hoist and an ingenious device alongside for disposing of any imperfect units. The affair consists of a short belt elevator leading up to the hopper above the machine. Spoiled block are dumped into the boot of this elevator where a live roll turning against the belt breaks up the concrete for return to the feed hopper.

During the first year's production, total direct labor cost charged against production has been $20.16 per 1,000 block . . . just a little more than 2 cents per unit! This includes all charges, from the arrival of raw materials by rail to the finished product loaded for delivery on trucks, as well as clean-up and repair-and-maintenance time. This low unit cost speaks well for the careful design of the plant and the selection of economical and labor-saving equipment.

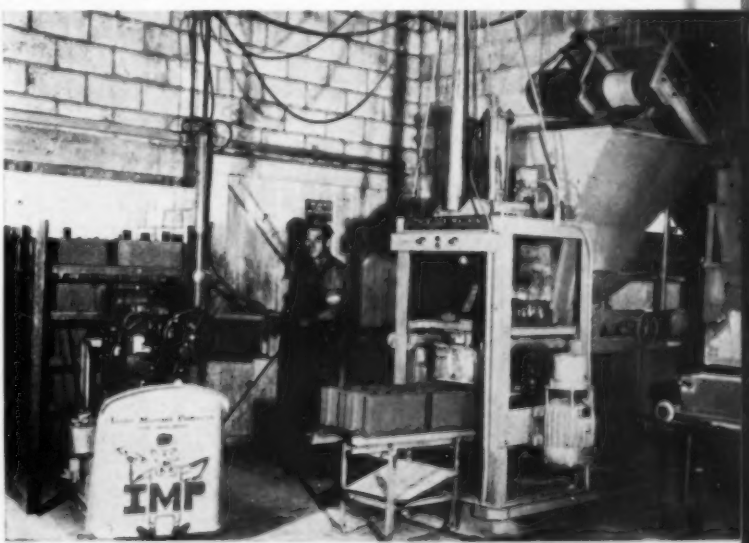
Pumice blocks are produced exclusively, the 1:7 mix being batched by volume into a 28-cu. ft. Dodson & McCord mixer where 15 gal. of water is added by meter.

Loaded racks are transported to the curing rooms by a Truckman power-operated platform truck. The

THE Adventures OF THE IMP at the UNDERWRITERS' LABORATORIES
AN ADV. OF IDAHO MASONRY PRODUCTS CO., TWIN FALLS
YOU ALL KNOW THE "IMP"... THE HAPPY LITTLE FELLOW WHO SYMBOLIZES THOSE "IMPSTONE" PUMICE BLOCKS MFG. BY IDAHO MASONRY PRODUCTS CO.
THAT'S ME, FOLKS!
UNDERWRITERS LABORATORIES
WELL...HE WENT TO THE WORLD-FAMOUS UNDERWRITERS LABORATORIES...
TO SHOW 'EM HE COULD PASS THE TEST AND MEET ALL REQUIREMENTS
SO THEY GAVE HIM THE WORKS! HEAT, COLD, PRESSURE, MOISTURE, ETC.
THE HEAT TEST
INGREDIENTS TESTED FOR PURITY...
PRESSURE
"MODULAR" SIZE, TOO!
MEETS DEMANDS OF NEW MODULAR BUILDING PLANS
THE "IMP" IS ACCEPTED...AND GETS THE STAMP OF APPROVAL OF THE UNDERWRITERS LABORATORIES...
THAT IS your GUARANTEE OF THE Best!
OK
UL

• The effective newspaper ad showing the adventures of the Imp at a testing laboratory. The use of red in the flame border and elsewhere made this ad spectacular.

• Below: The vibrator block machine and the lift-truck with a rack which is being loaded by the air-powered offbearer hoist.



• The crusher-screen and elevator to the pumice bins at the top of the plant.

two curing rooms have a combined capacity of 1400 standard 8-in. blocks. Steam is supplied by a boiler fired by a Combustioneer coal stoker and boiler operation is completely automatic, pressure and temperature actuating mercury switches at the various points of control.

A 12-hr. curing cycle—from 8 p.m. to 8 a.m.—is normally employed, steam pressure for the initial 3-hr. period being held to 15 or 20 lbs., then raised to 40 lbs. for about 7 hrs. and shut off 2 hrs. before the kilns are opened. The blocks are stacked and handled in 60-unit cubes in the yard, a Clark fork-lift truck being used to load the cubed units onto the trucks. All units are modular sized and test in the neighborhood of 1,000 p.s.i. regularly.

Both the plant at Twin Falls and the pumice deposit at Iona are served by the Union Pacific Railroad. A bulldozer and rooter break up and excavate the pumice, unusually white in appearance, at Iona and the cars are loaded by dozer from a ramp. About 60 cu. yd. is an average carload, with the maximum size piece seldom exceeding 3 in. Mining is carried on only intermittently, 15 to 20 cars being loaded at a time and delivered to the Twin Falls plant where the contents are unloaded, via track hopper and portable conveyor, and stockpiled.

From the stockpile, the pumice is transported to a hopper feeding a Russell combination crusher and screen, by a Ford tractor equipped with a ½-cu. yd. scoop. Oversize from the ⅜-in. cloth on the screen passes to a 16- by 16-in. double-roll crusher in closed circuit. The product of the screen is raised by a 55-ft. elevator to the 2-compartment 60-cu. yd. bins above the plant structure. Before going to the bins, however, further separation is accomplished by a Universal 4- by 6-ft. vibrating screen, a considerable amount of the ⅛-in. fines being taken out for sale locally as a plaster aggregate.

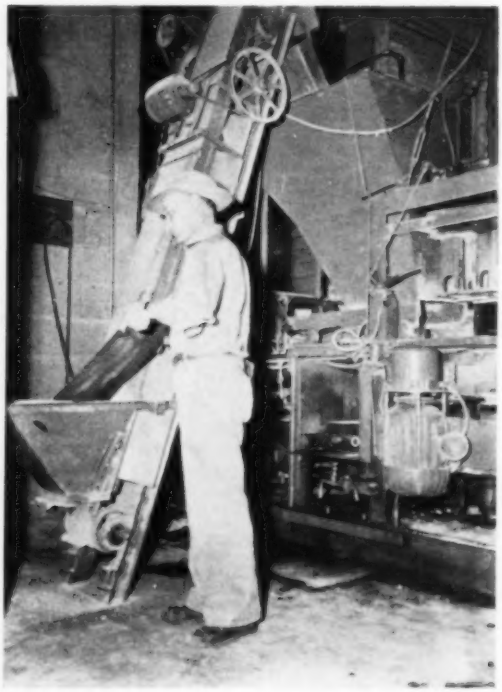
The company is planning to set up an auxiliary plant on the property for the dry mixing and proportioning of an acoustical plaster. The product, to be packed in paper bags, will be marketed extensively in the intermountain area.

Pacific Coast Aggregates Reopens Fire-Damaged Plant

According to word from the officials of the Pacific Coast Aggregates Company, production at the firm's Friant, Calif., plant, recently damaged by fire, will be resumed in the near future.

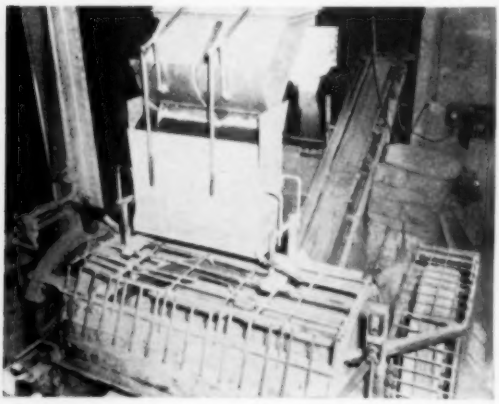
Estimated loss was at first set at between $300,000 and $400,000, but the figure was later revised to $95,000.

Portable equipment will be used in interim production. Friant operations, a company spokesman stated, produces about 10 percent of the company's total output at its 21 plants.



• Right: Mr. Reiher demonstrates the device beside the block machine which breaks up imperfect units and elevates the concrete to the machine hopper to be re-used.

• Below: The duplex batcher above the 28-cu. ft. batch mixer.



Swansea Stone Works Has Record of 44 Years Without a Major Shutdown

Backs "We'll Make Anything" Offer With Impressive Line of Products

another ON THE SPOT report

THE Swansea Stone Works of East St. Louis and Swansea, Ill., has one of the longest records of continuous production we have encountered in the concrete products field. Founded by A. J. Fournie, who is still (at 76) active in the business,

By WILLIAM M. AVERY

the company's first plant was established at Swansea, just north of Belleville, in 1905. This plant, with subsequent additions, has been operated continuously since the day it was opened, and its facilities are still in regular use for the production of drain tile, sills, lintels, steps, chimney block and many other concrete specials.

Until 1921, when a second plant was opened at East St. Louis, production at Swansea included concrete masonry units. The first units were produced on a Besser hand-tamp outfit. The collapsible mold box and a complete set of cores and pallets are still on hand, and are even used on infrequent occasions (see cut). Also still in operation at the plant is a drain tile machine which was purchased and installed in 1907.

• A general view of the Swansea Stone Works plant at Swansea, Ill. Portions of the original plant, built in 1905, are still in use.

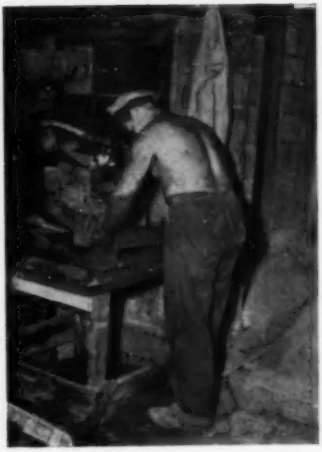
To a very considerable extent the company's reputation and its consistent success over so long a period of time are results of its willingness to make anything out of concrete that customers want. So many different items are produced at the Swansea plant that there is always, regardless of general economic conditions, a demand for *some* of its output. While other less versatile establishments folded up during the depressed thirties, this plant not only operated without interruption, but managed to show a profit.

The list of products which are either in regular production, or which can be turned out on short notice, covers a truly amazing range. It includes wall coping, sills and lintels, well tops, covers and blocks for cisterns and cess pools, precast steps, stepping stones, drain tile up to 12 in. in diameter and sewer pipe up to 18 in., haydite roof tile, haydite chimney blocks in various sizes, concrete airways for cellar windows, pier blocks, caps, special slabs in various aggregates, lot markers, street signs, fence posts, tombstones and surveyors' markers.

Swansea was the first plant in the St. Louis area to use haydite aggregate, and 25 percent of its production now incorporates that material. Most of the remainder consists of crushed limestone. There are two principal mixers in the plant for turning out concrete in volume, and a number of smaller machines for turning out facing materials. Although some of the handling methods used are now considered outmoded in more modern plants, they

(*Continued on page* 127)

• Built in 1921, the company's plant at East St. Louis, Ill., is used primarily for making concrete masonry units.



- Top, left: Left to right are A. J. Fournie, founder of the company, Paul Fournie (grandson), Fred and Clem Fournie (sons), and Jim Hemmer (grandson).
- Top, right: Making roof tile at the Swansea plant. Haydite (lightweight) aggregate is used extensively for this and other products.
- Above, left: Here rock-face units, produced on the Kramer-type block machine in the background, are being spray-painted before being loaded into the curing rack.
- Above, right: A gasoline-powered platform lift truck is used for handling loaded racks. Grandson Jim Hemmer is the operator.
- Left: A collapsible block mold, which dates back to the early years of the company, is still used from time to time for making certain specials.
- Right: Striking off concrete from one of the many steel forms which are kept on hand.

• A construction view of the Pike-German High School, located between Lawrenceville and North Hampton, O. All concrete masonry units for this modern fireproof structure, including 22,000 soffit filler block, are being supplied by the nearby plant of the Springfield Cement Products Company.

Telescopic Joists Help Ohio Firm To Tap Huge Soffit Block Market

another ON THE SPOT report

FOR some years now we have reminded our block producer readers at rather frequent intervals of the vast potential outlet for their products which exists in filler block floor and roof construction.

By WILLIAM M. AVERY

Today there are definite indications that this potential market is gradually being converted into an actual market, and those producers who have so far remained on the sidelines might do well to take a good, long look at the picture that is shaping up.

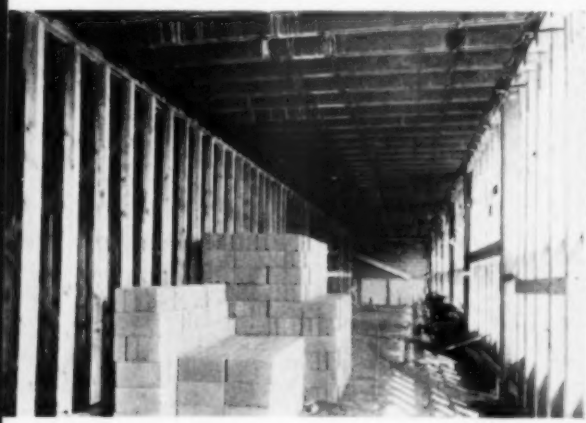
• Telescopic Centers, temporarily supporting the soffit block and rib joist roof, are placed end to end and supported at each end and the middle to obtain the desired 24-ft. span. Note the clear working areas made possible by the elimination of multiple wooden shores and forming.

We were reminded of this important development several weeks ago when we visited the Springfield Cement Products Company's plant at Springfield, O. This 38-year-old masonry unit concern equipped its plant for soffit block production some months ago, and at the time of our visit was already well through its first major job and had two others in the immediate offing. This active block plant did the floor and roof of their new office and a small house job first. They demonstrated these to the school architect, who was thus quickly sold on the merits of this type of construction. It seems necessary in almost any locality to do the small odd jobs first to demonstrate the results obtainable. Architects must be shown as well as told about floor filler units.

The accompanying construction photographs were taken at the Pike-German High School, a modern 150-by 310-ft. completely fireproof structure located about 8 miles west of Springfield, midway between the towns of Lawrenceville and North Hampton. Seventy-one thousand concrete masonry units, including 22,000 8-in. soffit block for the roof, are being supplied by the Springfield firm. Hunter and Zeller of Springfield are the architects and Fry Construction Company of Greenville, O., are the contractors.

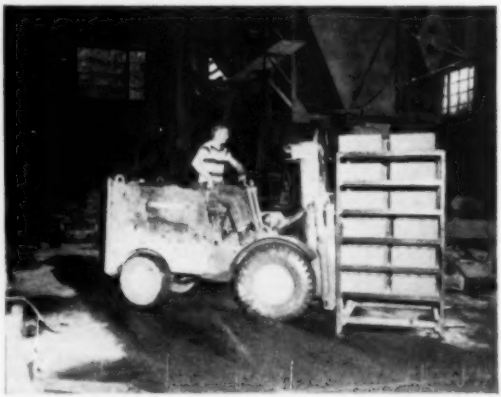
As the construction views show, Acrow Telescopic Centers are used to support the soffit block during erection in place of conventional timber shoring. Developed in Great Britain, and used there with outstanding success for several years, the

• Setting the soffit filler units on the Telescopic Centers. This operation is done with common labor.



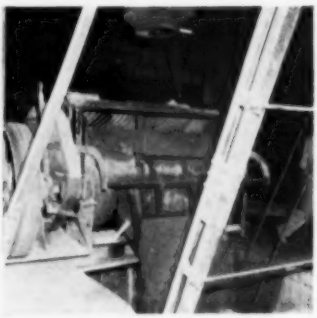
• After the Telescopic Centers have been removed, the ceiling requires only paint to finish the job. Note the staggered joints and electrical outlets. These soffit units are 7⅝ in. thick and are covered with a 2½ in. slab. The supporting rib joists are 5⅜ in. wide by 8 in. deep, and have ¾ in. and 1 in. reinforcing rods.

• A general view of the new block plant of the Springfield Cement Products Company. Aggregates are fed to the plant bins by belt conveyor at the left.



• Left: A Towmotor fork lift-truck picks up a loaded rack holding 72 standard units. The one large curing room adjoining the machine room holds about 12,000 units, or the output of two shifts.

• A view of the Johnson weigh batcher. This installation is on a mezzanine level directly above the mixer.



• The 50-cu. ft. Besser batch mixer is located at floor level under the batching platform.

• Right: The Besser Vibrapac block machine is equipped with an automatic pallet return which carries the pallets from the front of the machine into the pallet receiver located below the mold box.

• Left: Empty pallets are picked off the curing racks by means of electric coils in the horizontal solid arms of the offbearer.

• Right: The empty pallets are released automatically as the offbearer is moved forward to pick up two loaded pallets from the delivery conveyor.

Acrow Telescopic Center is now being distributed through leading block manufacturers in this country by the Besser Manufacturing Company. These temporary joists span the distance between supporting walls while the soffit units are placed and the monolithic reinforced concrete joists are poured. They are adjusted by a simple pinch bar operation from the minimum span of 10 ft. to the maximum of 16 ft. Shorter Centers, telescoping from 6½ to 10 ft., are used end to end with the longer ones for spans over 16 ft., or individually on spans under 10 ft.

For the high school project the Springfield block plant rented 250 Acrow Centers to the general contractor on the job. The Centers are placed with unskilled labor, using a mechanically operated extensible holding fork for raising and lowering. They are spaced on 21-in. centers, and the soffit blocks are so placed that the longitudinal joints are staggered (see cut). By using temporary timber shoring in the center to hold the two bays of Telescopic Centers, a clear span of 24 ft. was obtained. The cinder soffit block used are 7⅝ in thick, with a 2½-in. covering slab. The rib joists are 5⅜ in. wide by 9 in. deep, with ¾-in. and 1-in. diameter reinforcing rods. As shown in one of the photographs, when the Acrow Centers are removed, there is a flush ceiling of cinder masonry units which requires only paint to finish. This gives a very desirable acoustical ceiling.

Soffit floor filler block and standard masonry units for this project are being produced in a modern plant which went into operation in the spring of 1948. This plant supplements and is adjacent to another Vibrapac plant installed in 1942. Both sand-and-gravel and cinder units are produced, the heavy aggregates being supplied by a wholly-owned subsidiary concern, the Eagle City Sand & Gravel Company of Springfield. Cinders of an unusually good quality are trucked to the block plant from a local International Harvester factory.

The block machine is the new Besser Super Vibrapac, operating at a speed of 4½ cycles per minute and equipped with the new automatic pallet return which carries the pallets directly from the magazine at the front of the machine to the pallet receiver below the mold box. This unit operates in conjunction with a magnetic offbearing hoist which handles alternately two loaded pallets (six 8-in. units) from the machine to the curing rack, and two empty pallets on the return cycle. The empty pallets are picked up magnetically by means of electric coils in the horizontal solid arms of the offbearing hoist. As the offbearing hoist is swung back to the machine, a trip switch located in front of the return mechanism shuts off the magnetizing current to release the empty pallets. This saves the cost of one man. Other operations in the plant are shown in the accompanying photographs.

About 12,000 soffit block, or the output of approximately two shifts, can be stored within the building. Units are normally kept in yard storage for 30 days before they are shipped.

Overall operations of the Springfield firm are under the direction of Clem Beals Sr., president and founder of the company. The operations of the block plant are managed by Clem Beals Jr., and another son, Hugh Beals, manages the sand and gravel plant. The company's initial success with soffit filler block is just one of many indications that the potential in this field of operations can be built into firm orders. With its first major contract nearing completion, the company already has commitments for two other school projects. Delivery of 21,000 8-in. soffit block and 5,000 6-in. has been ordered, along with 30,000 blocks for walls, for the second school. There is every reason to believe that a steady, dependable market has been opened in this area for floor and roof filler units as great as that for walls.

Swansea Stone Works

(*From page* 123)

are well suited to the type of products made and to the volume of output desired. All materials come to the plant by truck. Six men, working under the direction of Oliver Fournie, are normally able to handle the full output.

When the company's East St. Louis plant went into operation in 1921, its productive capacity was 250 8-in. equivalents per day. This has been stepped up gradually to the present level of approximately 3000 units per 8-hr. day. A number of additions have been made to the plant since it was first built, including modern steam curing tunnels.

Block are molded on three Kramer-type machines which both tamp and vibrate the concrete. Since commercial manufacture of these machines was stopped some years ago, the company now builds its own. They are cored-pallet machines, and they produce one 8-in. equivalent in each operating cycle. Racks are loaded into the curing tunnels with a Truck-Man gasoline-powered platform lift truck.

In addition to the senior Fournie and his eldest son Oliver, who operates the plant at Swansea, two other sons, Clem and Fred, are active in the business. During summer vacations, two grandsons, Paul Fournie and Jim Hemmer, also work in the East St. Louis plant.

H. Render of Dubuque, Ia., has sold his equipment for the production of concrete products to the Kramer Concrete Products Company. He will handle sales for this firm. Mr. Render also stocks steel and aluminum windows, aluminum insulation, cement paints and water proofing.

$30,000 Stake in Ready-Mixed Concrete Proves Sound Investment

By EDWARD BRUNENKANT

another ON THE SPOT report

A NEW ready-mixed concrete plant was recently opened in Oelwein, Iowa. The $30,000 invested in new equipment for this plant at a time when formation of small businesses all over the country was proceeding cautiously, is above all else a resounding affirmation of faith in the future of the ready-mixed concrete industry. Although the initial investment was comparatively small, it bought for J. J. Levin, owner of Oelwein Concrete Co., Inc., a modern plant simple to operate and maintain, and capable of producing about 20 cu. yds. of concrete per hour.

Since the ready-mixed concrete business was wholly foreign to members of the new organization, Mr. Levin spent a considerable period of time, before any equipment was purchased or construction started, visiting and studying the layouts and operations of similar businesses. In all he visited 12 different ready-mix companies. A four passenger plane, owned and piloted by Mr. Levin, facilitated travel on his ready-mix observation tour.

The Oelwein plant was completed in May of 1948. Sand and gravel are trucked in from a pit 14 miles outside the town and stockpiled near the plant. A Link-Belt Speeder YC9 crane with a ½-cu. yd. bucket swings the aggregates from the stockpiles to a small hopper sunk into the ground. From this ground hopper to the batching bins, all aggregates are handled with a system of belt conveyors. Reclaiming from the hopper is done with a combination Barber-Greene unloader and portable conveyor to a Pioneer stationary 24-in. by 50-ft. belt charging the plant bins. Overhead storage consists of one C. S. Johnson 2-compartment, 50-ton steel bin. The aggregates are proportioned in a Johnson 3-beam

(*Continued on page* 133)

• A general view of the small but adequate ready-mixed concrete plant operated by the Oelwein Concrete Company, Oelwein, Ia.

• Below: From left to right—B. E. Ferguson, plant manager; J. J. Levin, president; and Don Earl.

• Right: One of the transit mixers taking on a load under the bin and batcher.

• Favre & Company's plant at Wallisellen, Switzerland. The pipe plant is the long block of buildings near the top of the picture, and to the right is the administration building.

Vertical Spinning of Concrete Pipes in Switzerland

another P-Q exclusive

By

ALFRED A. RYNER

THE Swiss, as everybody knows, are perfectionists. Whether it be a tiny wrist watch or a giant electric locomotive, only the highest standards of mechanical efficiency will satisfy them. Nor have they failed to apply their talents to the precast concrete industry. Switzerland is a leading user and manufacturer of concrete pipes, and has developed very advanced techniques for the production of pipes of the highest quality.

One of the leading firms in the industry is Favre & Company whose plant is located at Wallisellen, on the outskirts of Zurich, Switzerland's greatest commercial and industrial city. The Favre organization has been active in the precast concrete industry since 1886, and was the first licensee of the Hennebique system. The plant at Wallisellen was opened in 1912 and has been expanded continuously since then. Up to 1939 the main products were pipes made on conventional tamping machines of Danish manufacture; but in that year the company took over for eastern Switzerland the manufacturing rights for the Vianini and Stuessi centrifugal processes from the International Siegwart Beam Company of Lucerne; further buildings were erected, and today the manufacture of spun pipes is the most important of the plant's activities.

The managing director of Favre & Co. is H. L. Widmer, a well-known Swiss engineer and industrialist, who is also president of the International Siegwart Beam Company. This latter concern controls the patent rights for both Vianini and Stuessi processes throughout the world.

The Vianini System

The Vianini system of pipe spinning is well known. It was originally developed in Italy during World War I, and the patent rights were subsequently taken over by the International Siegwart Beam Company, which made various improvements. The Vianini machine is constructed like a lathe, having a hollow headstock through which the concrete is fed into the mold by means of a traveling spoon. With these

machines bell-and-spigot type pipes up to 12 feet long can be spun, and only a small amount of steel is used. Today there are about 40 Vianini machines in use throughout the world, and also a number of smaller machines of the same type. Vianini pipes are of very high quality and can be made in large diameters and lengths, with strength to resist considerable internal pressure. Like all horizontal spinning processes, the Vianini system has certain limitations; in particular it is necessary to use a rather wet concrete mix, with sufficient workability to give even distribution of the material and uniform wall thickness in the pipes. For the same reason it is not practical to use a large proportion of coarse aggregate, nor is it generally possible to use crushed stone, preference being given to round gravel. In this process the main function of the reinforcement steel is to make it possible to handle the pipes after spinning. If no steel is used, the pipes are liable to collapse when an attempt is made to remove them from the machine to the curing room.

Nevertheless the Vianini machine continues to be used with considerable success at Wallisellen alongside the tamping machines (which make small low-cost pipes) and the newer Stuessi machine described below.

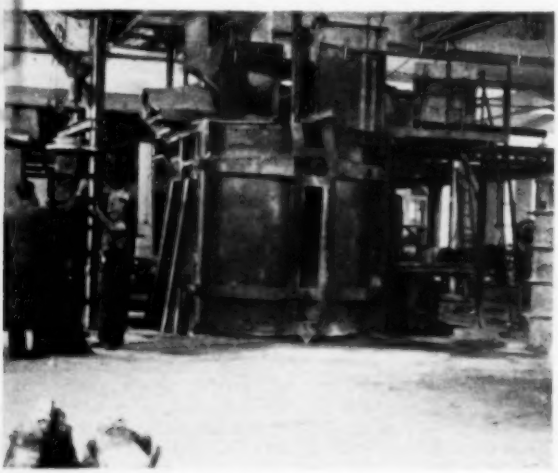
The Stuessi Machine

About the year 1932 Mr. Widmer, working with Jacob Stuessi, who has made a life-long study of these problems, determined to develop an improved system of pipe spinning, in

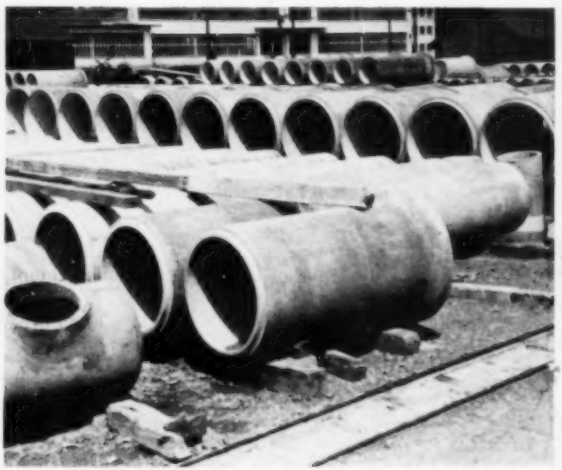
• H. L. Widmer, managing director of Favre & Co. and president of the International Siegwart Beam Company.

which the mold should rotate about a vertical axis. Together they developed the Stuessi machine. The first one was put into operation in 1935. Subsequently machines were installed in England and in Czechoslovakia, where they have been running successfully for more than 12 years. Mr. Widmer and Mr. Stuessi had two objects in mind in developing this process. First they sought to make it possible to spin pipes without using any steel, but with the same strength as pipes produced by other methods, making possible a saving of over five tons of steel in a mile of 10-in. pipe and 40 tons in a mile of 48-in. pipe. Second they aimed to eliminate the segregation which occurs when spinning pipes with wet mixes. Segregation not only reduces the strength of the concrete, but also results in the formation of an internal skin excessively rich in cement and liable to develop shrinkage cracks which cannot be entirely eliminated even by the most careful curing.

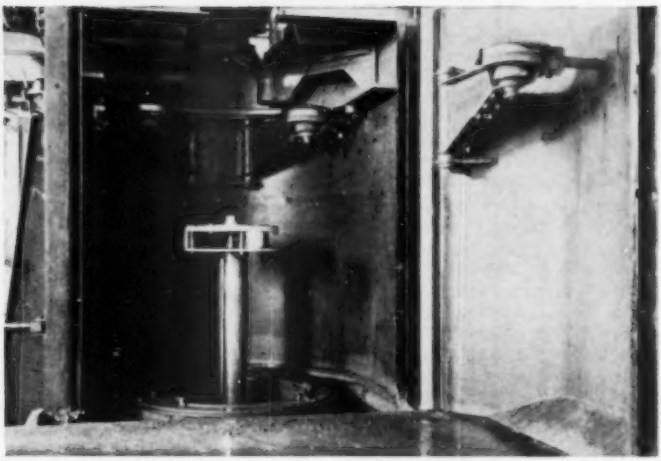
The Stuessi machine now in use at Wallisellen represents the most advanced development of the process, and has been operating successfully for about 10 years. Stuessi machines differ from all other centrifugal spinning machines in that they operate vertically, and that they use very dry mixes—a water-cement ratio of about 0.35 being the aim. These advantages are made possible by the use of a distributor table which moves up and down inside the pipe mold, under the control of the machine operator. This distributor table rotates at a greater speed than the mold, and the mixed concrete is allowed to fall onto it from above. As soon as the concrete strikes the table it is flung out against the sides of the mold with such force that it remains in position with practically no subsequent movement. No segregation takes place, and a cross-section of a finished pipe shows perfect distribution of the aggregate throughout the concrete. This devolpment has made it possible to use practically any kind of aggregate; in fact, the plant in England uses only crushed granite, a type of material which is very difficult to use in other spinning machines where the mix has to be sufficiently workable to distribute itself in the mold during the spinning process.



• A Stuessi machine in operation. The men on the left are preparing to place a fresh mold in the machine.



• Finished Stuessi pipes in the yard. Note the tongue-and-groove type spigot used also with bell mouth pipes.



• Interior of the spinning chamber of the Stuessi machine, showing the mold table and the adjustable guide rollers. The distributor table is shown partly raised.

The Stuessi machine can also be used to make reinforced pipes, and in this case a slightly more workable mix is used. The machine and process are protected by numerous patents.

The Plant at Wallisellen

As the accompanying illustrations show, the plant at Wallisellen is today very extensive, with ample open-air curing and storage space. One building is devoted entirely to pipe spinning and has direct access by road and rail.

Aggregate, in this case river gravel, is brought to the plant by rail and is dumped into a track-side hopper. An underground oscillating conveyor carries the material from the bottom of this hopper into the building, where it is crushed and graded. A small bucket elevator picks it up and delivers it onto a reversible horizontal belt conveyor which in turn delivers to a number of bins constructed along the wall of the building.

Both Vianini and Stuessi processes are operated in this building, but each is separate and has its own mixing arrangements. For the Stuessi machine the aggregate is drawn from nearby bins and is batched by hand with the cement into a skip loader which elevates to a conventional pan-type mixer as generally used in Europe. In order to obtain very smooth and impermeable inner and outer surfaces, combined with strong and dense pipe walls, two different mixes are used. These are both prepared in the same mixer, which is arranged at a greater height than the spinning machine. The mixed concrete is delivered into a small traveling hopper, which in turn dumps into two bins in front of the machine operator—one for the coarse mix and the other for the fine. Each bin is equipped with a short screw conveyor which the operator controls by means of a hand lever. Operation of these levers causes the concrete to be delivered directly into the open end of the pipe mold. The only other important controls are the large handwheel which regulates the hydraulic system for raising and lowering the distributor table inside the mold, and the push-button switch-gear which controls the speed of the driving motor.

The Stuessi machine is of heavy construction, since the rotating mass can amount to as much as 2½ tons, turning at 200 rpm, while for smaller pipes the speed can be as high as 700 rpm. This heavy construction has proved advantageous because of the resulting long life and low maintenance cost. When the machine is running, there is no excessive noise and vibration is negligible. The mold rotates inside a circular steel chamber, open at the top and having a large door in front. The molds are six feet long and the height of the chamber is slightly greater. This chamber provides a safety wall and also collects any water thrown out during spinning.

The door of the spinning chamber is operated to place the mold in position, and to remove it after spinning. On the floor of the chamber is the rotating table on which the mold is placed. In the center of this table is the distributor table which runs at a higher speed and is raised and lowered by means of a hydraulic ram. The mold, equipped with dogs which engage with corresponding depression in the table, is locked in position by large steel keys which are simply dropped into slots, where they are retained by centrifugal force. The upper part of the mold is centralized by three guide rollers moving on a steel running ring. One of these rollers is mounted on the door of the chamber, so that as

• Left: The outer mold is removed after spinning, leaving the pipe to stand overnight in the inner jacket.
• Right: A finished pipe is removed from the Stuessi machine.

the door is closed and clamped home, the mold is automatically located. Each of these guide rollers is adjustable for mold diameter and this adjustment is varied only when changing to a different size mold. The mold is placed in the machine by an overhead traveling crane. A fork-lift truck could also be used, since the molds are equipped with lifting lugs, but the crane has the advantage of needing no floor space, and is operated by one of the two men who assemble the molds.

Molds

The molds used in the Stuessi process are of double skin construction, consisting of a heavy outer mold and light inner jacket. Both are split and have quick fasteners. The outer mold carries a roller track so that it can be located in the machine as already described. It is designed to be used for making either bell-mouth or tongue-and-groove pipes. The inner jackets fit accurately into the outer mold and are of sheet steel about ⅛ in. thick. They can be designed for either bell-mouth or tongue-and-groove pipes, the same outer mold being used in either case. Each inner jacket also has a cast-iron joint ring and a steel guide ring. There are, of course, no cores. All pipes, whether plain or socketed, are made with tongue-and-groove ends; this makes a further economy of mold equipment and is advantageous because it makes the spigot end of the pipes self-centering in the bell-mouth sockets.

As soon as a pipe has been spun, it is removed from the machine and taken to the curing floor, where the outer mold is removed and fitted with a fresh inner jacket, ready to return to the machine. The inner jackets are stripped the following day, leaving the pipes standing vertically. It is necessary to have only two outer molds for each size of pipe, together with sufficient inner jackets for one day's production. A further economy in initial investment is possible by having only sufficient jackets for a half a day production. The size of pipe being made can then be changed during the lunch break. This change-over can be completed in about 15 minutes.

The double-skin mold construction keeps down the initial investment in mold equipment to about two and one half times the cost of the machine itself, as compared with eight to ten times in the case of horizontal spinning machines.

Operation of the Machine

After placing the mold in the machine and closing the door, the first operation is the forming of the socket—the pipes being made with the bell downward. The machine is run very slowly and a quantity of concrete is fed into the mold by the screw conveyor. This is rammed by hand into the bell section of the mold. The machine is then speeded up and a stream of fine mix is fed into the mold to form the outer skin of the pipe. Meanwhile the distributor table is made to rise slowly inside the mold. This table has a number of radial fins on its top surface which help to throw the concrete against the inside of the mold. The table is then lowered and the process is repeated while the coarse mix is fed in to form the body of the pipe. Finally a further layer of fine concrete is applied. An extra-smooth internal finish can be obtained by pouring in about a gallon of rich cement grout. This is in direct contrast to other centrifugal processes, which all show a tendency to leave too much rich cement on the inside of the pipe. The machine is then stopped and the pipe is complete.

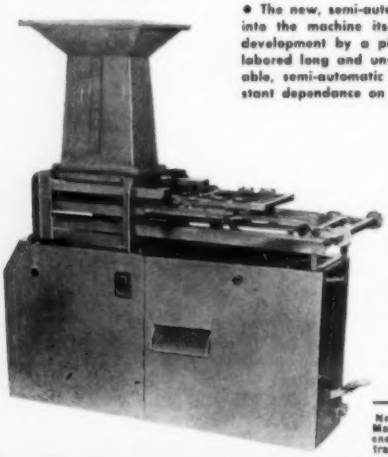
The distributor table is equipped with a ring which positively controls the internal diameter of the pipe and below this ring there are a number of hinged shoes which are pressed by centrifugal force against the inner suface of the pipe. The distributor table runs about 10 percent faster than the mold and the shoes press against the concrete with considerable force, thus making an important contribution to the density of the concrete. It will be seen than the concrete is compressed in three ways: first by being flung against the mold wall by the distributor, second by centrifugal force during spinning, and third by the pressure of the shoes. The only wearing parts likely to need replacement are the shoes and the size ring on the distributor table.

An important feature of the machine is that the distributor table is positively geared to the mold table. The reason is that the friction between the size ring or the shoes and the inside of the pipe can momentarily become very considerable, and might tend to stall the distributor table, but since the latter is geared to the rest of the machine, the mold and the pipe itself act as a flywheel and help to maintain a steady speed of rotation.

The machine is driven by a 33 hp.

You—or Anyone—Can Make Perfect Roof Tiles with the PERMA-TILER

• There are big profits to be made in the manufacture of concrete roofing tile. But don't throw your money away on so-called "machines" that depend on long, tedious training of machine operators before you can even begin to turn out an acceptable product.



• The new, semi-automatic PERMA-TILER has the skill built into the machine itself. It represents over 10 years of development by a pioneer roofing-tile manufacturer, who labored long and unceasingly to create this truly dependable, semi-automatic machine that has freed him of constant dependance on skilled operators.

• You can produce both French (modern streamlined), or Mission (half-round Spanish) tile, both interlocking, on your PERMA-TILER. The machine itself—not the operator—trowels each tile to a smooth, hard, watertight finish automatically. Anyone can turn out up to 350 tiles hourly.

• Profits from the PERMA-TILER should enable you to write off its modest cost in a few short months. Get full details about this new and foolproof machine . . . and get them TODAY!

New PERMA-TILER Vibrator-powered Roofing-Tile Machine . . . semi-automatic action permits anyone to make 6 perfect tile per minute . . . no training or skill required.

PERMA-TILE CONCRETE PRODUCTS CO.
2201 Arrowhead Ave. San Bernardino, Calif.

duct-cooled, variable-speed motor, by means of V-belt. The belts and pulleys, like the hydraulic ram for raising and lowering the distributor table, are below ground level, but are accessible through a manhole in the floor. The hydraulic pump is driven by a separate motor. The ram which supports the distributor table is made very long, so that even when fully extended, it is well supported and does not allow the distributor table to run off center inside the pipe. Mr Stuessi states that machines of this type can be designed to spin pipes of almost any size, though the present machine is limited to 4 ft.-diameter pipes; furthermore, in the larger sizes the pipes could be made in greater lengths—say 12 feet.

The output of Stuessi pipes in 8-hr. day ranges from 56 pipes of 12-in.-diameter to 36 pipes 48-in.-diameter. The pipes as they come off the machine are so dense that the concrete cannot be indented with the finger. It is this great density which makes it possible to eliminate the reforcement and to stand the pipes vertically. The jackets are stripped the following day and the pipes can be yarded immediately. No steam is used. If necessary, the pipes can be shipped when one week old.

A rather unusual feature of the Stuessi machine is that it can also be used for spinning asbestos-cement pipes. These are made with much thinner walls than concrete pipes, but otherwise the process is similar and no changes are made in the machine.

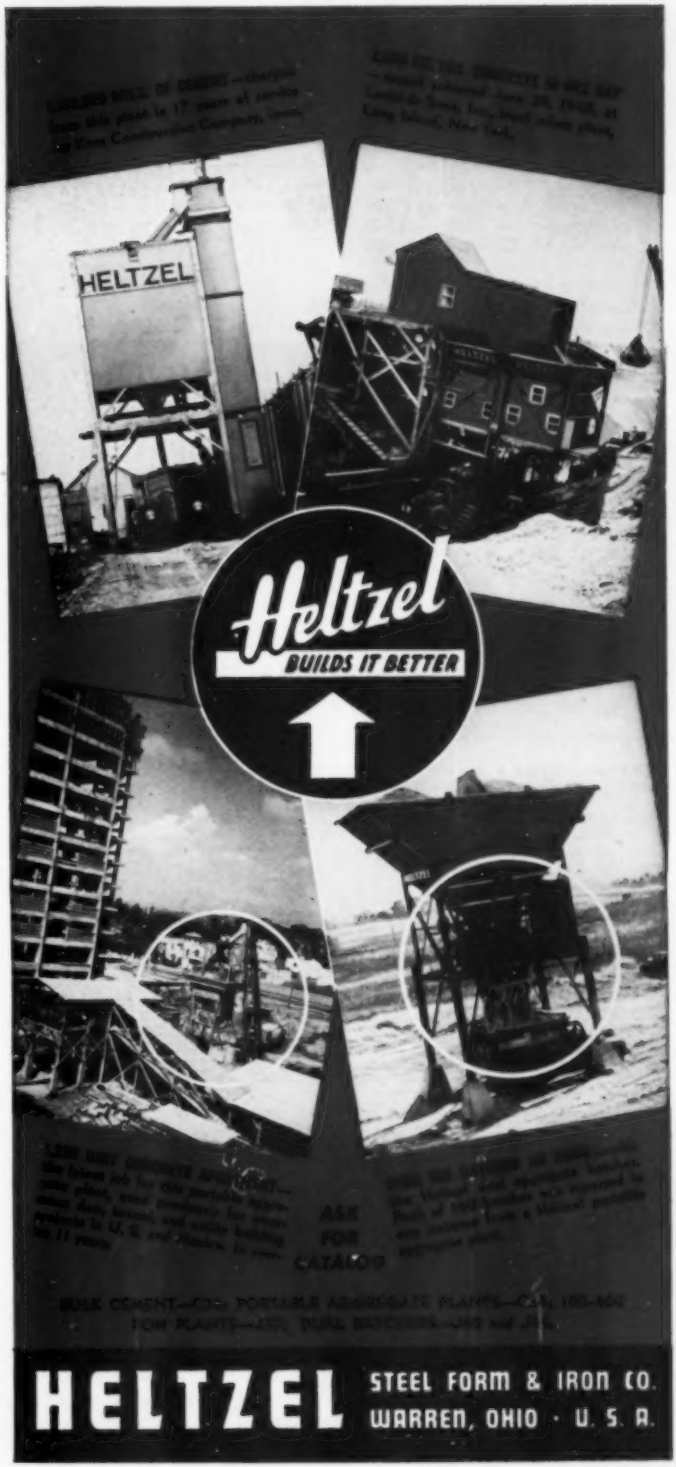
Stuessi pipes, without reinforcement, have been tested to more than 500 p.s.i. internal pressure and can be safely used at a pressure of 150 p.s.i. or higher. Reinforcement need only be used, therefore, when called for by local regulations.

$30,000 Stake

(*Continued from page* 128)

weigh batcher, while the water is metered out by volume through a steel tank.

Cement is handled in bags which are emptied into the truck mixers through a hooded chute suspended from a separate batching platform Although this layout requires the trucks to stop at two stations when taking on a load, once under the aggregate batcher and once under the cement platform, it seemed like the simplest and cheapest system available for the low initial expenditure. An added advantage is that full cement bags may be wheeled



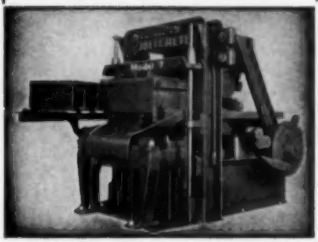
directly onto the platform from a railroad car. Standard portland cement is used exclusively, as Iowa is one of the few remaining states that hasn't officially sanctioned air-entrained concrete.

Approximately 40 percent of the concrete so far produced has been sold to farmers. According to Mr. Levin, with whom we discussed this subject recently, the farm business will increase, barring a catastrophic drop in farm income.

At the present time the company has three trucks, 2 Fords and 1 G.M.C., all equipped with 2-cu. yd. Jaeger mixers. To date, Oelwein ready-mixed concrete has been hauled as far as 25 miles from the plant. A unique tax situation exists within Iowa. In addition to the regular 2-percent retail sales tax assessed on each yard of concrete, the buyer also has to pay the same rate on the charge assessed to him for haulage—hauling costs being interpreted in Iowa as an integral part of retail selling prices.

Besides J. J. Levin, who acts as president of Oelwein Concrete Company, Inc., key personnel include B. E. Ferguson, plant manager, and Don Earl.

The Vibration Machine Supreme



Vibration under pressure — 7,200 blows per minute—and ruggedly built to give long life, the Joltcrete machine is the choice of the wise concrete-products operator. Produces clean-cut, high strength units in any size, and gets the most out of a bag of cement. Built in three sizes with capacities of 7 to 9 standard units per minute.

Stearns Clipper Stripper Machines; Stearns Joltcrete Machines; Stearns Mixers; Cast iron and Press Steel pallets. Straublox oscillating Attachments, etc. Repair parts for: Anchor, Stearns, Blystone Mixers and many others.

ANCHOR CONCRETE MACHINERY CO.
O. M. Frisl, Manager **Columbus, Ohio**

NEW MACHINERY and SUPPLIES

● Visible Mixing Action

The Concrete Transport Mixer Company, Inc., 4985 Fyler Ave., St. Louis, Mo., has introduced the Hunkins "Hi-Lo" 3-cu. yd. truck mixer, designed by Everett D. Hunkins, Hunkins-Willis Lime & Cement Co., St. Louis.

This all-purpose mixer embodies many of the "Transport" qualities, including full open top and stationary drum, which insure visible mixing action. The mixer is 77 in. high when mounted on a 2-ton truck equipped with 8.25 x 20 tires. Overall height of only 115 in. gives ample clearance under bins. Fast discharge ups capacity, cuts fuel cost.

● Above: The first "Block Bender" machine, a product of the Carpenter Manufacturing Co., Richmond, Va. The device has a mold box mounted on rubber pads and vibrated by an electric motor belted to a rotary vibratory. A core mechanism is arranged to be pulled out of the block, leaving the "bend" with two bell holes at the entrances. Two men working with this experimental model have made one block in 1½ minutes.

Below: The block made with the Block Bender weighs approximately 20 lbs. It is used in drain lines, sewer construction lines and distributing lines for septic tank installations.

Concrete Plants Opened in Kansas, Washington Towns

Among newly-established concrete plants reported recently are the establishments of V. L. Graham and E. L. Morris at Wapato, Wash., and of Jack Lesueur and Art Martin at Olathe, Kan. The former concern also operates a plant at Toppenish, Wash.

Quality **CINDERS**

(ANTHRACITE)

CARLOAD SHIPMENTS

CLEANED, SCREENED, CRUSHED

SIZING: HALF INCH DOWN TO POWDER — READY MIXED FOR YOUR MIXER — LOW IN COMBUSTIBLE CONTENTS — FREE OF STAINING CAUSES.

STEADY DEPENDABLE SUPPLY SHIPPED ON SCHEDULE

WRITE US NOW — MENTION RAILROAD DELIVERY

H. HESSEY MILLER, CHESTER, PA.

"WHAT PRICE ABRACADABRA?"

Abracadabra is expensive. Many of you found that out years ago. You practically had to use black magic to figure your costs which were based on truck mixer operation. Indefinite capacities, "outlaw" sizes, rapid changes in ratings—all combined to make abracadabra confusion a big expense.

That's why the Truck Mixer Manufacturers Bureau was formed—to eliminate that costly abracadabra. We set standards which guarantee size and capacity. And we put a rating plate on each truck mixer. The Bureau has taken the mumbo-jumbo out of figuring truck mixer operating costs, and erased the confusion of "outlaw" sizes.

2 CUBIC YARD MIXER
GUARANTEED TO HOLD MIX AND AGITATE ITS RATED CAPACITIES AND CERTIFIED TO COMPLY WITH TRUCK MIXER MANUFACTURERS BUREAU STANDARDS AS APPROVED BY N.R.M.C.A.
3 CUBIC YARD AGITATOR
N.R.M.C.A. REGISTERED NO.

We think you prefer it this way—with established standards and a rating plate to guarantee size and capacity. Look for that plate, and read it with confidence.

Truck Mixer Manufacturers Bureau

Affiliated with The National Ready Mixed Concrete Association

BLAW-KNOX DIVISION Pittsburgh, Pa.	CONCRETE TRANSPORT MIXER CO. St. Louis, Mo.	WORTHINGTON PUMP & MACHINERY CORP. RANSOME DIVISION, Dunellen, N. J.
CHAIN BELT COMPANY Milwaukee, Wis.	THE JAEGER MACHINE COMPANY Columbus, Ohio	THE T. L. SMITH COMPANY Milwaukee, Wis.

CONCRETE MANUFACTURER USED EQUIPMENT SECTION

WANTED

STEARNS JOLTCRETE
No. 7 or No. 9

Box No. M 4
c/o PIT AND QUARRY PUBLICATIONS
538 So. Clark St. Chicago 5, Illinois

FOR SALE

Besser Vibrapac—makes 3-4, 2-6, 2-8, 1-10, 1-12, 8" header, air offbearer, Besser 25' mixer, 30' skip, in good cond. with many new parts, approx. 1700 steel pallets, 70 steel racks, air compressor, water meter, automatic transporter with new battery & parts, new — never used 45' steel enc. belt bucket elev., 45 yd. 2 comp. steel bin with vol. batcher, 1948 Erickson fork lift used very little, with motors, starters, switches, all for $20,000.00.

Besser semi-automatic 3½ per minute tamper with V belt drive and pallets $600.00.

25' Multiple mixer, motor & V belt drive, new liners, like new $1200.00. 35' open steel bucket elev. with new Pintle chain $300.00.

Int. K-8 with 10 motor 24' flat bed Highway Trailer with 10.00 tires all around, low mileage, first class shape $4000.00.

STRONG BLOCK CO.
La Crosse, Wisc.

SPACE HEATERS

War Surplus Bargain

New — Ready To Use!

40,000 BTU capacity

—Burning gasoline, kerosene or diesel fuel.
—Electric blower—12 V. DC or 110 V. AC using small transformer.

Portable, Quick, Clean Heat

Ideal for curing room, concrete plants, work under construction, emergency heat, or auxiliary heaters.

$95.00 each

Clapp, Riley and Hall Co.
14 No. Clinton St.,
Chicago 7, Illinois

FOR SALE
COMPLETE BLOCK PLANT EQUIPMENT

Stearns No. 9 Joltcrete No. J52 machine. Racks, pallets and mould boxes to go with it. Air hoist, air compressor, two mixers, overhead bins, conveyor, batching equipment and batching scales.

Will sell separately or as a complete unit. All. eqt. in good condition.

MASOLITE DIVISION
GENERAL DREDGING CO., INC.
2200 LaFountain St., Ft. Wayne, Ind.
Telephone Anthony 1453

PACKER-HEAD WINGS

McCracken Type — PROVED to last as long or longer — yet cost considerably less. Write for prices.

TEXAS FOUNDRIES
LUFKIN, TEXAS

SITUATION WANTED

ENGINEER, mechanic, sales manager advertising man, young, 21 years experience concrete products plants, three years in field using concrete products. Available for periods of three months or less. Prefer competitive situations involving both blocks and wet cast products. Replies strictly confidential. Top references. Write

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WANTED USED

No. 9 JOLTCRETE or BESSER VIBRAPAC. Preferable with auxiliary equipment.

WALTER WOJTOWICZ
24 Lexington Street P. O. Box 704
New Britain, Connecticut

BARGAIN SALE

Will Negotiate Any Reasonable Price

65 Molds, including 10 end and eave details, for making 3½" concrete channel type, roof and floor slabs.

84 Molds adapted for making either 2¾", nailable concrete slabs, or 2" concrete flat slabs. All these molds are of sturdy steel constructions and have been used for short time.

2 Syntron, VP 75 vibrating tables.

INDUSTRIAL PRECAST CONCRETE PRODUCTS CO., INC.
14 Main St., Hudson Falls, N. Y.

FOR SALE

1—Korpac Stripper Block Machine complete with 16 C. F. mixer, hoist and motors.

2100 Pallets for 8" block
900 Pallets for 4" block

All in first class condition working every day, will average 1300 8" block in 8 hours. Bought new late in 1947 and well maintained.

We are installing larger capacity equipment to meet increased demand.

If interested call OR WRITE

CEMENT PRODUCTS CO., INC.
3300 No. Adams St., Peoria, Illinois

Attractive price will be quoted.

FOR SALE

1—Besser Vibrapac
1—Anchor Semi-Automatic Tamper
1—F. C. George 2 block Vibrator
3—Besser K-3 Tampers
2—Universal Semi-Automatic Tampers
1—W. E. Dunn Kor-Pak Vibrator
3—12 Cu. Ft. Batch Mixers
1—25 Cu. Ft. Besser Mixer & Skip
2—Concrete Mixer Conveyors
3—Hand lift Trucks
3—Clark Platform lift trucks
1—Low Pressure boiler

Write or wire today for complete listing showing accessory equip., Location and prices.

Masonry Equipment & Engineering Company
325 E. Michigan Avenue
Three Rivers, Michigan

WANTED TO BUY

Stearns No. 9 Joltcrete, must be in good condition, and price must be reasonable. Please write detailed information.

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UNBREAKABLE PALLET RINGS

Write for full information

TEXAS FOUNDRIES
LUFKIN, TEXAS

FOR SALE

1—Korpac Block machine
1—12 cu. ft. mixer with motor and belts
1—belt conveyor with motor
Complete assembly $1100.00
or will sell separately.

GOSHEN VERILITE COMPANY
512 No. Seventh Street Goshen, Indiana

CEMENT COLORS — PROMPT SHIPMENTS

Write for samples and prices of "LANSCO" CEMENT COLORS in bright shades of RED, YELLOW, GREEN, BLUE, BLACK, BROWN. Manufactured by

LANDERS-SEGAL COLOR CO.
76 Delevan Street, Brooklyn 31, N. Y.

FOR SALE

Progressive Ready-Mix Company in live community Western Oregon. Four 4-yard mixers recent models. Grossed $40,000 first 6 mos. 1949. Good reasons for selling.

Box No. Q 2, c/o Pit & Quarry Publications
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— FOR SALE —

7—Mack Trucks, Model A K, 4 cyl.; yr. 1928-31; $350.00 Each. Good running condition and good tires. Trucks were hauling 4 yds. concrete in agitators until August 1, '49.
1—Bucket, 2 cu. yd. Williams Material Handling Bucket; 6 months actual use—$1,000.00.
Subject to Inspection
Above all F.O.B. Indianapolis

READY MIXED CONCRETE CORPORATION
1100 Burdsal Parkway Blvd., Indianapolis 23, Ind.

FLORIDA OPPORTUNITY

Ready mixed concrete and contracting business in the heart of the most prosperous and fastest growing part of Florida.

Complete plant in top condition, twelve months per year operation. Forty thousand square feet of land served by sidings from two railroads. For further information write

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FOR SALE

1—Stearns Model A Clipper Stripper, complete with or without offbearing hoist. (No handling of block by hand).
Mold box and attachment for 8x8 Flue Chimney Blocks and Pallets for above type machine.
8", 10" and 12" pallets. 45°- air space.
Reasonably priced.

BERTHELET FUEL & SUPPLY COMPANY
820 W. Montana Street Milwaukee, Wisconsin

PRICED TO SELL

"SUCCESS" BLOCK MACHINE, MIXER Eqt. to make 1,000 blocks per day.

Complete — $500.00

Lester Sherry Oakwood, Ohio

FOR SALE

Multiplex Chimney Block Machine. Makes 16x16 Chimney Block 6 inches in height with 10¾ inch round ventilated flues. Most popular chimney block today. No pallets included but pallets can be purchased from Multiplex Company, Elmore, Ohio. Price $275.00.

GOSHEN VERILITE COMPANY
512 N. Seventh St., Goshen, Indiana.

IT'S BIG • IT'S FACTUAL! • IT'S COMPLETE!
IT'S READY NOW

1949 Edition CONCRETE INDUSTRIES YEARBOOK

Largest in its History... incorporating all the latest available information on machinery equipment and processes

Completely Re-written—Pages of New Information

Because of the rapid growth of the industry in the past few years, and the important technological developments which have accompanied that growth, the Yearbook has been re-edited from front cover to back. Pages of new information, drawn from the experiences of the industry's outstanding producers, have been added to make this edition more than ever the indispensable text book of the concrete field.

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Established producers and newcomers alike will find in this bigger and better Yearbook a wealth of well-arranged, specific operating information to assist them in solving production problems and increasing profits. Plant design, the selection and characteristics of raw materials, batching, mixing, curing, handling and marketing are just a few of the important subjects treated.

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When new plants are built, when equipment requires replacement, or when existing plants require modernizing and expansion, experienced operators unfailingly turn to The Concrete Industries Yearbook for the know-how information they must have. Today, just as when it was first published 11 years ago, the Yearbook is absolutely unique in its field. And in every year since its inception the demand for copies has far exceeded supply.

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With every producible block, joist and cubic yard of concrete desperately needed today to ease the most severe housing shortage this nation has ever known, you will want more than ever to have on your desk this practical, down-to-earth guide to better production and higher profits.

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READ

what America is saying about ayr-trap!

COLONIAL SAND & STONE CO.
INCORPORATED

30 ROCKEFELLER PLAZA
NEW YORK 20, N.Y.

TELEPHONE CIRCLE 6-8400

A. C. Horn Company, Inc.
Long Island City, N. Y.

Gentlemen:

We have been using Ayr Trap on many thousand yards of concrete for approximately one year.

Our experience with Ayr Trap has been entirely satisfactory.

We have found:

1. Concrete with this mix does not suffer any reduction in strength in the richer mixes and in the leaner mixes show an increase in strength.

2. Same is not sensitive to variations in the type and amount of sand incorporated in the mixes, therefore, we are not called upon to change the amount we add everytime a new sand or a different mix is used.

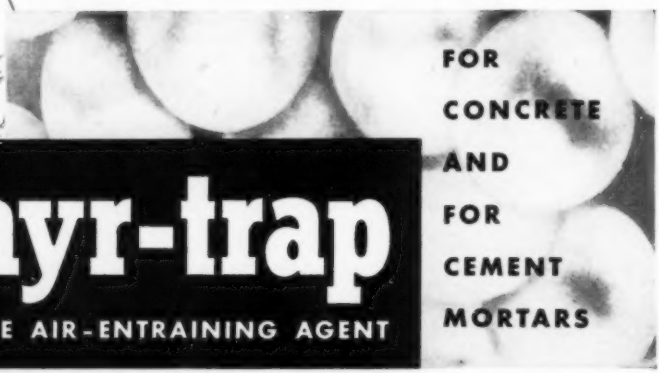
3. No elaborate equipment is necessary for dispensing same. Ordinary pint measure is used. Variations on the recommended quantities does not seriously affect the results.

4. Adding this material to the mixes simplifies our plant operations in that we do not have to tie up any storage hoppers as would be required with the interground cement. Errors that would result with the variations of cement as required are reduced.

Very truly yours,

COLONIAL SAND & STONE CO., INC.

Frank L. Kelly
Vice President



ayr-trap

THE AIR-ENTRAINING AGENT

FOR CONCRETE AND FOR CEMENT MORTARS

A.C. HORN COMPANY, INC.

SUBSIDIARY OF
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CHEMICAL CORPORATION

Write today for important data on Ayr-Trap as used by these big firms to save money

Manufacturers of Materials for Building Maintenance and Construction
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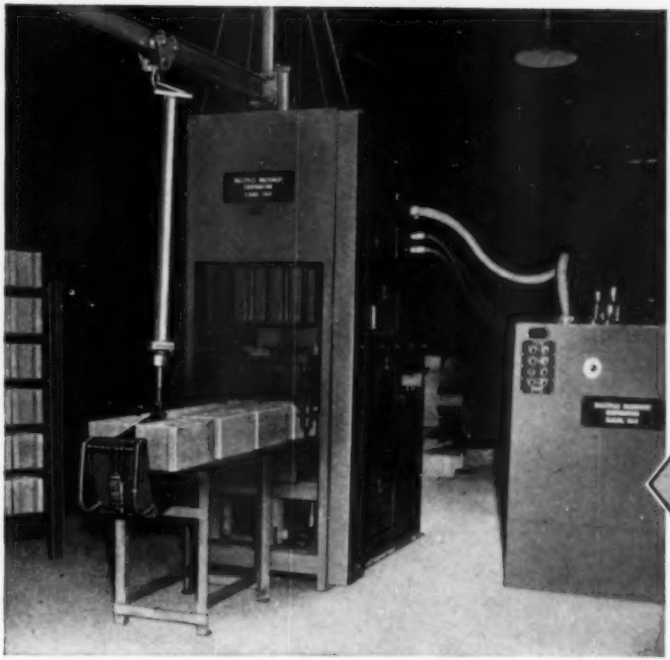
LEADING BLOCK MANUFACTURERS *prefer*

MULTICO AUTOMATIC



BLOCK MACHINES

COMPLETELY AUTOMATIC

HANDLES ALL AGGREGATES

PRESSURE VIBRATION PLUS TAMPING

SEPARATE POWER PAK CONTROL CABINET

MAKES ALL SIZES & SHAPES OF BLOCKS

Exclusive! — Only Multico gives you Vibration, tamping and pressure!

The Multico is industry's most versatile block machine. It makes all sizes and shapes of blocks, thus you can fill *all* orders—faster. Its practically a factory in itself. The Multico takes the aggregate and tamps on pressure while vibrating—all fully automatically, *all in one operation*—no other block machine can do this. Its exclusively MULTICO. Once the controls are set the MULTICO needs no operator excepting, of course, the offbearer. Thus you cut down on overhead, cut down on labor, and produce finer quality blocks faster.

Not a special machine, but a simple rugged powerful standard production machine, parts are always available. Then too the separate power pak can serve later models—another saving.

The Multico is made in two models one for 2 block per cycle and the larger unit for 3 block per cycle.

MULTICO
BLOCK MACHINES

MFGRS. of BLOCK MACHINES • MIXERS
SKIP HOISTS • STRIPPERS and ELEVATORS

"A BEAVER FOR WORK" MULTIPLEX MACHINERY CORP.

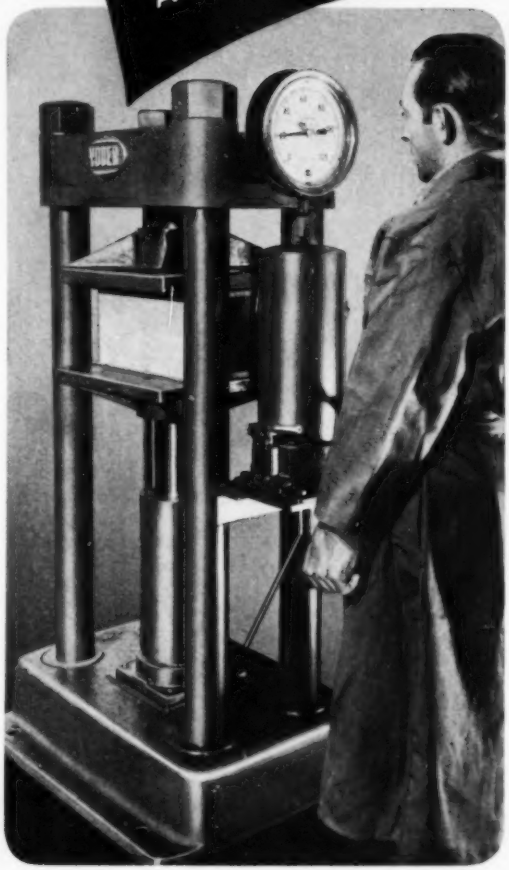
WRITE FOR FREE CATALOG

MULTIPLEX MACHINERY CORP. ELMORE OHIO

Better Control of Quality and Costs

The Yoder Concrete Testing Machine insures better Control of Quality and Costs. "On-the-spot" Compression Tests with Fracture Examination is the answer to the biggest problem which has ever faced the industry. Greater uniformity and more economical mixes boost Sales and Profits.

TESTS CONCRETE BLOCK, BRICK AND CYLINDERS



The bigger your investment in plants and equipment, the more indispensable will be a Yoder Testing Machine because it protects your whole investment. It soon pays for itself by saving the cost of outside testing.

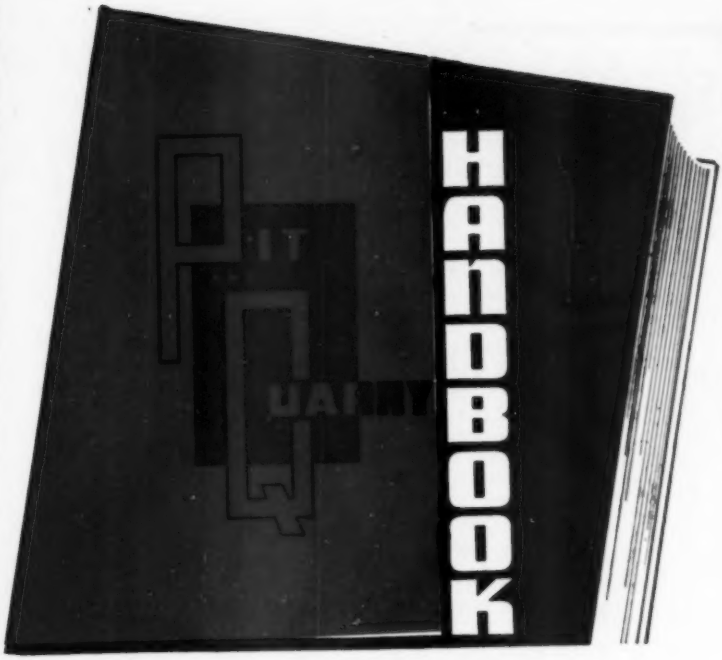
It gives you the additional advantage that you can make all the tests you want, as often as you wish, at little or no extra cost. Equally important—you can, by examining the fractures of weak specimen, usually tell just what caused the concrete to be defective. By thus ascertaining not only that *something* is wrong, but also *what* is wrong, you are able more promptly to remedy the trouble and stop the continued production of defective material.

In most cases, because you obtain a much closer check on every step in the process, you are able to maintain uniform quality with more economical mixes. This in the long run is the biggest factor in increasing sales and reducing unit cost. Literature on request.

THE YODER COMPANY
5560 WALWORTH AVENUE • CLEVELAND 2, OHIO

ENGINEERING
YODER
MANUFACTURING

CONCRETE TESTING MACHINE



An Indispensable Tool For Both Operator and Supplier of Equipment

The pit-and-quarry industries, in providing important basic raw materials, bear a large share of the responsibility for the success of America's industrial effort. For the producer the revised Technical Section of the 1949 Handbook provides a ready answer for many of his operating problems. For the concern supplying him with the machinery and equipment necessary to produce his materials, the 1949 Directory Section provides an accurate, up-to-the-minute list of all known producers of nonmetallic minerals and their products. No effort or expense has been spared to make the new Directory an efficient and highly useful source of information about producers. The number of changes made in the 1949 edition runs into the thousands.

1949 Edition— Order Now

Directory Section listings appear two ways — (1) alphabetical by companies, (2) geographical by plants. You get company names, officers, location of plants, their capacity, and the names of the men who do the buying.

- 912 PAGES
- 27 CHAPTERS
- AUTHORITATIVE
- 15,000-NAME DIRECTORY
- COMPLETELY INDEXED

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—copies of the 1949 Directory bound separately at $15.00

☐ Check is enclosed

☐ Mail me the bill

Name ..... Title .....

Company .....

City ..... Zone..... State .....

LOOK AT THE RECORD . . .

Proving OSWALT ENGINEERING SERVICE ! improves Concrete Block Plant Performance

A new Pennsylvania subscriber to Oswalt Engineering Service reports two 8-hour shifts now equal to two 10-hour shifts of the past, *plus* improved quality of product.

This record of increased efficiency is only one of many reported by Vibrapac plant operators, who agree that Oswalt Service insures larger output, better quality units, and minimum costs.

DUAL VIBRATOR
SYNCHRONIZED VIBRATOR
COMPOUND VIBRATOR

. . . Applicable to Vibrapac Plants Only

For new engineering set-up, new low prices, and new terms,
Write or Call . . .

OSWALT
ENGINEERING SERVICE CORP.

1335 CIRCLE AVE. FOREST PARK, ILL.
Phone: Columbus 1-7073 — Forest 6-3898

"COMMERCIAL" *Pressed Steel* PALLETS *for*

Write for Folder

THE COMMERCIAL SHEARING AND STAMPING CO.
YOUNGSTOWN 1, OHIO

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with an *Erickson*

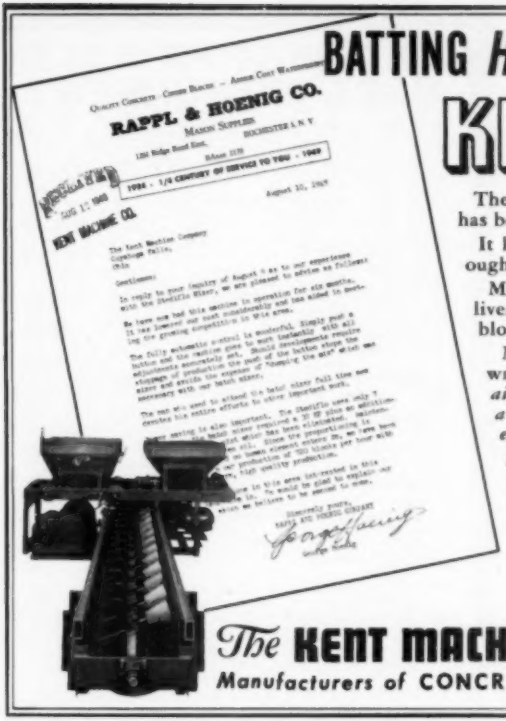
POWER LIFT TRUCK

Doubled Our Yard Capacity—"Four million blocks is a lot for one lift truck to handle in a yard that is anything but level," writes a user. "So we decided we needed another. Then this year we purchased a third Erickson, your high lift tilt style truck. In the short time that we have had it, this truck has more than paid for itself. It has about doubled the capacity of our yard and is a great help in picking up cubes as well as loading trucks."

Each Erickson Fork or Platform Truck is custom built to meet your particular needs. *Write for our circular.*

Erickson **POWER LIFT TRUCKS, Inc.**
1403 Marshall Street N. E. • Minneapolis 13, Minnesota

BATTING *HIGH* IN THE *BIG LEAGUE*


RAPPL & HOENIG CO.
MASON SUPPLIES
ROCHESTER 1, N. Y.
1924 - 1/4 CENTURY OF SERVICE TO YOU - 1949
August 31, 1949
KENT MACHINE CO.
The Kent Machine Company
Cuyahoga Falls,
Ohio
Gentlemen:
In reply to your inquiry of August 6 as to our experience with the Stediflo Mixer, we are pleased to advise as follows:
We have now had this machine in operation for six months. It has lowered our costs considerably and has aided in meeting the grueling competition in this area.
The fully automatic control is wonderful. Simply push a button and the machine goes to work immediately with all adjustments accurately set. Should circumstances require changes of production the mix of the batches changes the manner and avoids the necessity of changing the mix* when we
necessary with our batch mixer.
The man who used to attend the batch mixer full time now devotes his entire efforts to other important work.
Time saving is also important. The Stediflo uses only 7 seconds while mixer required a 15 to 20[illegible] mixing period which has been eliminated. Consequently we [illegible] about five percent more production in [illegible] production of 720 blocks per hour with [illegible] quality production.
[illegible] in this area [illegible] to explain our [illegible] to be pleased to come.
Sincerely yours,
RAPPL & HOENIG COMPANY
[illegible]

KENT STEDIFLO MIXER

The KENT Stediflo Mixer referred to in the letter at left has been "hitting the ball" consistently.

It has maintained a "high average" in output of thoroughly and economically mixed concrete.

Moreover it is in the "big league"— consistently delivering concrete in volume to amply serve *one of the largest* block machines.

Mr. Hoenig of the progressive firm of Rappl & Hoenig writes enthusiastically—*it has lowered costs considerably—aided in meeting competition—is fully automatic—releases a man for other work—saves power—eliminated the human element—aids in maintaining a production of 720 blocks per hour—has been nil in maintenance cost.*

If you operate a large plant you need only install a Stediflo and let its cost saving advantages pay for itself. If you operate a smaller machine comparable advantages are available to you in the KENT Flomaster mixer which operates in the same advanced principle.

WRITE TODAY FOR COMPLETE INFORMATION

The **KENT MACHINE CO.** Cuyahoga Falls, Ohio

Manufacturers of **CONCRETE PRODUCTS MACHINERY** *Since 1925*

you can see

that

Trinity White

is the whitest

white cement!

You'll get fine results with this extra white cement. It's true Portland Cement made to ASTM and Federal Specifications. If your dealer does not have it, write the office nearest you: Trinity Portland Cement Division, General Portland Cement Co., 111 West Monroe St., Chicago; Republic Bank Bldg., Dallas; 816 W. 5th St., Los Angeles.

as white as snow

WE ARE FROM MISSOURI!

LET US "SHOW YOU"

WITH VISIBLE MIXING...

FOR DRY BATCHING PLANTS OR CENTRAL MIXING PLANTS

CONCRETE TRANSPORT MIXER CO. INC

4989 FYLER AVE. . . . . ST. LOUIS 9, MO.

EXPANSION SALE USED EQUIPMENT

We must make room for new equipment. Every machine must be sold within the next 30 days.

1—Stearns Clipper Stripper Block Machine complete with motor, 6 & 8" mold boxes	$495.00
1—Stearns Clipper Stripper Block Machine complete with motor, 4 x 8" mold boxes	850.00
1—Complete Toth Block Plant—Block Machine, 12 cu. ft. Mixer, Skip Loader	1250.00
1—New Holland 4 roll, heavy duty Cinder Crusher complete with motor and switch — excellent condition	750.00
1—Multiplex Chimney Block Machine and 50 pallets	165.00
1—Multiplex 40 cu. ft. Mixer, complete with motor & switches	750.00
1—Kent Tamper & Stripper Block Machine, less motor—this machine has made less than 10,000 blocks	300.00
1—F. C. George Block Machine and 3000 pallets	600.00
1—Clark Fork Lift Truck — 3500 lb. capacity, rubber tires	1250.00
3—Small Hand Lift Trucks. Each	75.00
1—25 H.P. Electric Motor, 2 phase	100.00
1—Butler Pin Weigh Batcher	600.00
5000—12" Pressed Steel Pallets—like new. Each	.60
4000—4" Pressed Steel Pallets—like new. Each	.25

We have plenty of pallets in all sizes. Send us tracing of your requirements.

GENERAL ENGINES CO.

Manufacturers Concrete Block Machinery

DREXEL BLDG. PHILADELPHIA 6, PA.

WRITE OR PHONE

for full information on

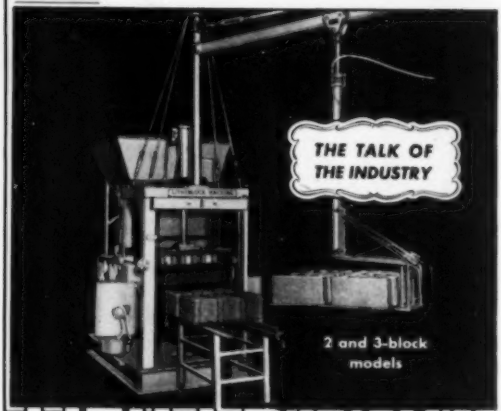
GOCORP BLOCK MACHINES

Gocorp Clipper • Batch Mixer Gocorp-Yoder Continuous Mixer and Block Tester • Gocorp Tile Machine • Skip Loader • Hoist Jeltcrete Automatic Pallet Feeder • Gocorp Attachments and Parts for Stearns Equipment.

IF YOUR GOAL IS

- LOWER PRODUCTION COST
- MORE BLOCKS PER DAY
- BETTER QUALITY PRODUCT

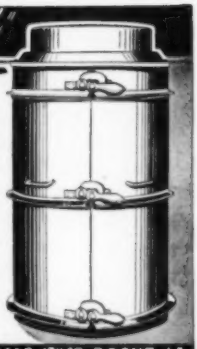
Then here's your machine



LITH-I-BLOCK

Write **LITH-I-BAR CO.**
Dept. 112, Holland, Mich.

THE "Quinn Standard" FOR CONCRETE PIPE



The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that Quinn pipe forms and Quinn mixing formulas combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

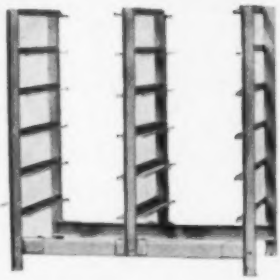
WRITE TODAY. Complete information, prices, and estimates sent on request.

Also manufacturers QUINN CONCRETE PIPE MACHINES

QUINN WIRE & IRON WORKS 1627 12TH ST. BOONE, IA

For Fork or Platform Lift Trucks
Corrosion-Resistant Alloy Steel

- Lift truck racks
- Turntables
- Concrete block cars
- Transfer cars
- Dump cars
- Dryer cars
- Decks
- Clay cars



CHASE BLOCK RACKS & CARS

Sturdy construction, rigid field connection.

Available in any style or capacity.

Shipped knocked down for low freight cost.

Easily assembled without special tools or welding.

Write for catalog and price list on complete Chase line.

Chase Foundry & Mfg. Co.
COLUMBUS 7, OHIO

SIMPLIFY YOUR MATERIAL HANDLING with a

DODSON SKIP HOIST

If you're interested in maximum production with minimum labor, one or more Dodson Skip Hoists will do it. For charging bins, handling material or aggregate direct to trucks, you save handling, time and labor. Electrically operated with push-button control.

Dodson-McCord Mixers

This bowl-less mixer has hardened interchangeable staves. Eliminates shut-down. All parts replaceable. Over 12 years satisfactory service coast to coast. A size to fit every need. . . . Literature on request.

DODSON MANUFACTURING CO., INC.
MACHINERY DIVISION
1463 BARWISE - WICHITA 2, KANSAS

Getting down to Model "K" cases

"The first Lift Truck to meet our requirements in the Plant!"

Concrete products manufacturer reports on HydroLectric "K" Lift Truck

CASE DATA

Efficiency: "Very satisfactory"
Downtime: "None, since purchased in Dec. 1948"
Manpower Saved: "Two Men"

"We are more than satisfied" with the Hydrolectric 'K,' reports the Ritter Concrete Block Co., Cincinnati. Used in moving loaded block racks into kilns, and bringing empty racks to block machine, this Model 'K' has a special 36 in. square platform for side handling. It eliminates the need for transfer cars, frees two men for productive work.

Let Stuebing engineers show you how the Hydrolectric 'K' fits your handling need. For details write for Bulletin "T."

Stuebing Engineered

the Hydrolectric 'K' includes such features as differential gear drive, sealed in lubricant, slashing maintenance and downtime costs.

LIFT TRUCKS INCORPORATED
2425 SPRING GROVE AVE. • CINCINNATI 14, OHIO

INCREASED PRODUCTION ✓
LOWER COST ✓
BETTER PIPE ✓

THREE & FOUR FOOT LENGTHS
4" to 15" B & S
6" to 16" T & G

MODEL "C"

HYDRAULIC PIPE MACHINE

Produce your concrete pipe on a Dixon Model "C" Hydraulic Pipe Machine and you maintain a good margin of profit despite highly competitive prices.

Fingertip single valve control . . . variable speed drive with instant change . . . variable-action hydraulic pump that can be changed instantly while running . . . a completely automatic spinning bell-packer . . . a table that rises, lowers and locks automatically . . . these and other quality features assure top production, better pipe and lower costs with any crew. All wearing parts are of long lasting, wear-resisting alloys and complete stocks are carried for immediate delivery of any part.

Write today for complete information on this efficient machine. It's your low cost way to higher profits.

HOUSTON CONCRETE MACHINERY CO.

6600 WASHINGTON AVENUE HOUSTON, TEXAS

Manufacturers of:

Dixon Pipe Machines
Pipe Bend Machines
Dixon Mixers

Septic Tank Forms
Dixon Conveyors
Off-Bearing Carts

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*See also detailed information in 1949 Pit and Quarry HANDBOOK and Concrete Industries Yearbook

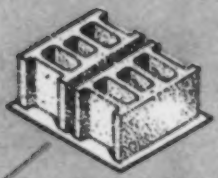
Our newest machine

THE CARPENTER "BLOCK BENDER"

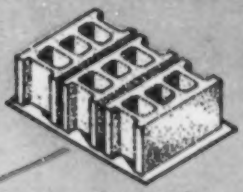
Made this block bend, or turn, used in sewer, drain and tile lines. A fine side liner for the concrete product manufacturer making septic tanks. We also make **Precast Septic Tank Forms.**

CARPENTER MANUFACTURING COMPANY
R.F.D. No. 1, Box 470, Richmond 23, Virginia

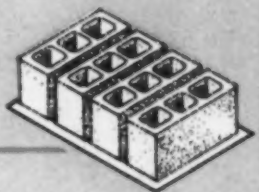
ONE SET of PLAIN PALLETS for ALL SIZES of UNITS



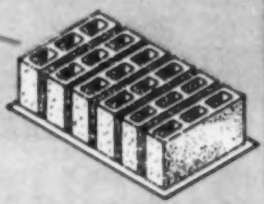
Two 12" x 8" x 16" Units on a Plain Pallet.



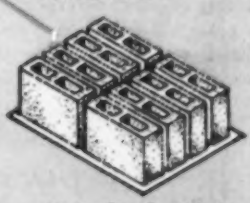
Three 8" x 8" x 16" Units on a Plain Pallet.



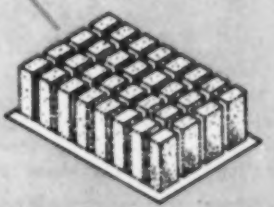
Four 8" x 8" x 16" Units on a Plain Pallet.



Six 4" x 8" x 16" Units on a Plain Pallet.



Eight 4" x 8" x 12" Units on a Plain Pallet.



Thirty-Two Brick on a Plain Pallet.

Why VIBRAPAC Concrete Masonry Units COST LESS!

The original Besser stripper method of making ALL types and sizes of concrete masonry units on one set of Plain Pallets has proved to be the greatest economy factor ever introduced to the Concrete Products Industry.

In addition to the tremendous saving in pallet cost, the use of Plain Pallets has many other cost-reducing features. No large pallet storage space is required. The job of changing to another set of pallets to make different sized units, is eliminated. Plain Pallets are fed automatically, eliminating the necessity of inserting pallets into mold by hand.

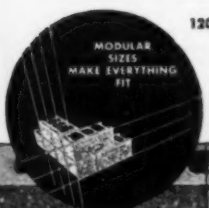
Besser originated this important cost-reducing idea . . . and Besser will continue to improve concrete block production methods . . . reducing unit costs still further.

Investigate the PROFIT possibilities of Besser Super Vibrapac Machines. Write today for literature.

BESSER MANUFACTURING COMPANY

Complete Equipment for Concrete Products Plants

120 — 49TH STREET • ALPENA, MICHIGAN, U.S.A.



IMPORTANT PATENT NOTICE — Besser Vibrapacs are manufactured under following patents and other patents pending: 1,867,144 — 1,905,975 — 2,003,632 — 2,029,365 — 2,069,880 — 2,106,329 — 2,251,447 — 2,269,955 — 2,275,676 — 2,319,291 — 2,360,122 — 2,366,780 — 2,423,557 — 2,446,818.

BESSER

SUPER VIBRAPAC · BATCH MIXERS · SKIP LOADERS · BLOCK CUBERS · AGLITE PLANTS · ACROW CENTERS · GENUINE PARTS

Turbo-Generator Pedestal, Central Arizona Power & Light Co., Phoenix, Arizona. Power Company's men in charge of job—Mr. James A. Johnson, Construction Superintendent, Mr. Frank H. Edson, Asst. Construction Superintendent, and Elvin M. Parker, Job Foreman. Pozzolith Ready-Mixed Concrete supplied by Superior Sand & Gravel Co., Phoenix, Arizona.

POZZOLITH READY-MIXED CONCRETE

Concrete of ideal placeability, readily mobile and with the correct cohesiveness essential to the successful pouring of this monolithic turbo-generator pedestal, was produced with Pozzolith by Superior Sand and Gravel Co., Arizona's leading ready-mixed company.

In addition to easy placeability and assured strength, Pozzolith Ready Mixed Concrete provides these advantages:

1. EASY, ACCURATE CONTROL
2. MINIMIZED SHRINKAGE
3. REDUCED PERMEABILITY
4. GOOD APPEARANCE
5. ECONOMY

Over 400 leading ready-mixed plants in all parts of the country are producing Pozzolith Concrete — and many top design engineers are specifying it — for these reasons.

Write for full information.

POZZOLITH AUTOMATIC DISPENSER

Operator delivers the correct amount of Pozzolith, in liquid form, required for a batch, by simply setting the control dial and opening valve.

OVER 400 LEADING READY-MIXED PLANTS ARE NOW EQUIPPED WITH THIS DEVICE . . .

WHY?

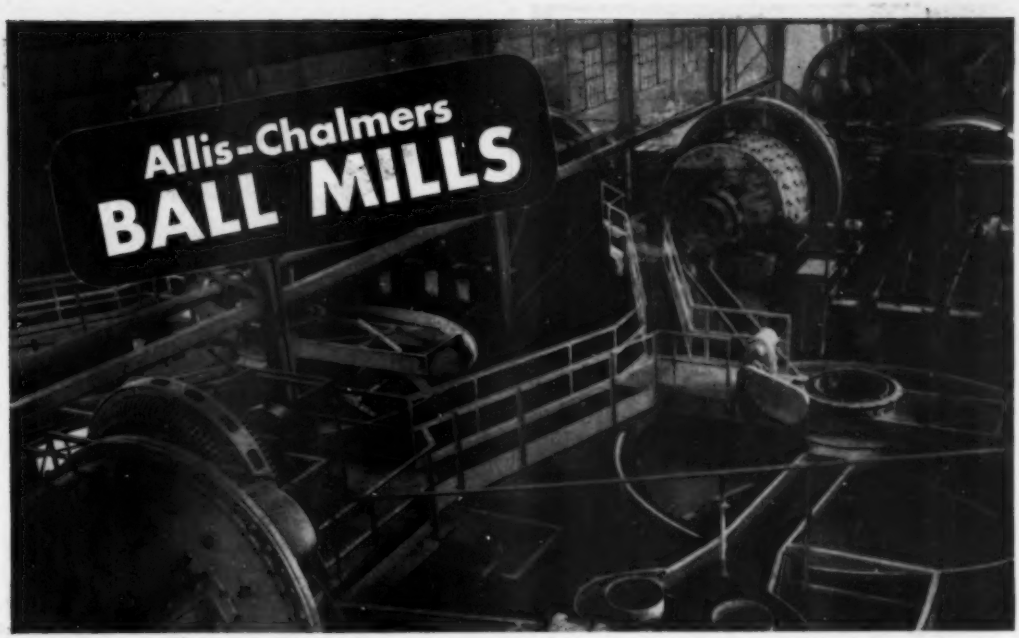
Because a producer can, at lower cost:

1. Produce waterproof concrete . . . with normal Portland cement.
2. Produce high-early strength concrete . . . with normal Portland cement.
3. Produce air entrained concrete without strength loss . . . with normal Portland cement.
4. Produce all of the above properties out of one cement bin . . . with normal Portland cement — stepping up production, reducing inconvenience in handling and cutting costs.

In normal mixes, concrete of any given durability, strength and workability, is produced more economically with Pozzolith than with any other material on the market, added at the mixer or inter-ground.

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO TORONTO, ONTARIO



Grind 3⅓ Million Tons of Cement Kiln Feed

100 HOURS of tough-going grinding service every week — that's working schedule of these two A-C ball mills, in operation 12 years, grinding mixed limestone, shale and sand to a fineness suitable for kiln feed. Yet, in 12 years only screen plates, lining plates and grinding media have had to be replaced.

Stamina and low maintenance like this are *typical* of on-the-job records of Allis-Chalmers grinding mills. And here are a few reasons why:

- **Heavy welded plate shells are "stress-relieved" as a unit to eliminate strains around welds.**
- **Trunnions cast integral with heads for added strength. Fewer parts.**
- **Extra large bearings . . . low bearing pressure . . . long bearing life.**
- **Accurately machined mill heads and shell flanges provide perfect alignment when bolted together.**

In addition to long life, you'll get top efficiency and economy when you specify Allis-Chalmers grinding mills. A-C builds five separate types of mills in a maximum range of sizes, with modifications to suit your requirements.

SUITABILITY CUTS COSTS

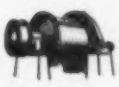
Ball mills, for example, are available in overflow, intermediate, low level diaphragm, and dishpan grate types . . . with various types of feeders, mill drives and liners. Mills are furnished complete with direct motor drive and control or V-belt drive. One company responsibility assures proper selection for efficient performance.

The Allis-Chalmers representative in your area can aid you in obtaining practical, *usable* advice on your grinding problems. Call him today. Allis-Chalmers offices or distributors are in principal cities in the U.S.A. and throughout the world.

Kilns, Coolers, Dryers

Jaw Crushers

Hoists


Mills

Gyratory Crushers

Vibrating Screens

AND OTHER EQUIPMENT FOR THE CRUSHING, CEMENT AND MINING INDUSTRIES

ALLIS-CHALMERS, 974A SO. 70 ST.
MILWAUKEE, WIS.

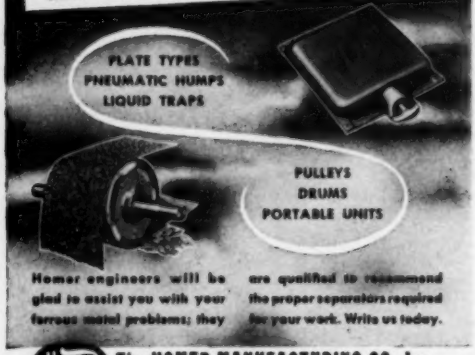
ALLIS-CHALMERS

A-2860

PERMANENT NON-ELECTRIC Homer MAGNETIC SEPARATORS

. . . Proven far SUPERIOR in separating Ferrous from Non-Ferrous Metals, for protection of equipment, purifying products, concentrating materials, separating ferrous from non-ferrous parts.

FOR DEPENDABLE PERFORMANCE SPECIFY . . . HOMER Permanent Non-Electric Magnetic Separators.



Homer engineers will be glad to assist you with your ferrous metal problems; they are qualified to recommend the proper separators required for your work. Write us today.

Homer The HOMER MANUFACTURING CO., Inc.
DEPT. I-52 LIMA, OHIO

Producers of Magnetic Separator Equipment Since 1923

FLEXCO
BELT FASTENERS AND RIP PLATES

FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH

FLEXCO Fasteners make a tight, butt joint of great strength and durability . . . distribute the strain uniformly. Operate smoothly over flat, crowned or take-up pulleys. Made of steel, Monel, Everdur and Promal.

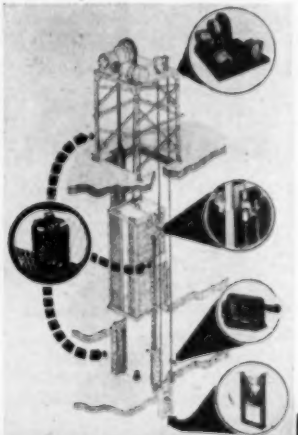
FLEXCO Rip Plates are for repairing and patching damaged belts.

Ask for Bulletin F-100

FLEXIBLE STEEL LACING COMPANY
4623 Lexington St., Chicago 44, Illinois

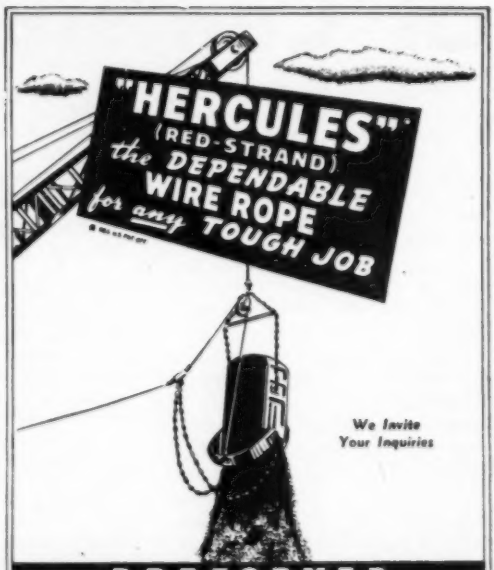
Strong, Smooth and Readily Troughing.
Order From Your Supply House

save time . . . save money with
EHRSAM ELECTRIC MANLIFTS



Rapid, inter-floor transportation for your employees means more productive time. More production means more profit. Time is saved and your money is saved. Illustrated here is the electric operated, cage-type manlift made in 300 lb. and 500 lb. capacity. Other types available. Reasonable installation costs bring you real savings. Write today for complete information.

THE J. B. EHRSAM & SONS
MANUFACTURING COMPANY
ENTERPRISE, KANSAS



PREFORMED
MADE ONLY BY
A. LESCHEN & SONS ROPE CO.
ESTABLISHED 1857
5909 KENNERLY AVENUE • ST. LOUIS 12, MISSOURI
NEW YORK • CHICAGO • HOUSTON • DENVER
LOS ANGELES • SAN FRANCISCO • PORTLAND • SEATTLE

Six Important Conventions Are Just Ahead

Industries Covered Are:

Agricultural Limestone

Sand and Gravel

Ready Mixed Concrete

Crushed Stone

Concrete Masonry

THE winter convention season is just ahead for many of the important nonmetallic mineral industries and related industries. Important national meetings are scheduled for producers of agricultural limestone, sand and gravel, ready mixed concrete, crushed stone and concrete masonry. In conjunction with several of these meetings biennial exhibits of machinery and supplies will be held. There will be more exhibits than ever before, giving the producer an exceptional opportunity to examine and compare equipment in which he is interested.

Complete programs of all these conventions are not yet available but the information on hand indicates that they are up to their usual high standards. Recognized authorities, most of them members of or directly connected with these industries, will discuss the latest and most important developments affecting these industries. Subjects covered will include production methods, merchandising, research, governmental developments, present conditions and future prospects, etc. Open forums will invite wide participation in the formal discussion of vital problems.

• HAVE YOU MADE YOUR HOTEL RESERVATIONS? •
IF NOT, DO SO NOW!

Here are the Dates and Places

Fifth Annual Convention
of the
National Agricultural Limestone Assn.
January 18, 19, 1950
Statler Hotel, Washington, D. C.

Thirty-Fourth Annual Convention
and Machinery Exposition
of the
National Sand and Gravel Assn.
January 23-27, 1950
Stevens Hotel, Chicago, Ill.

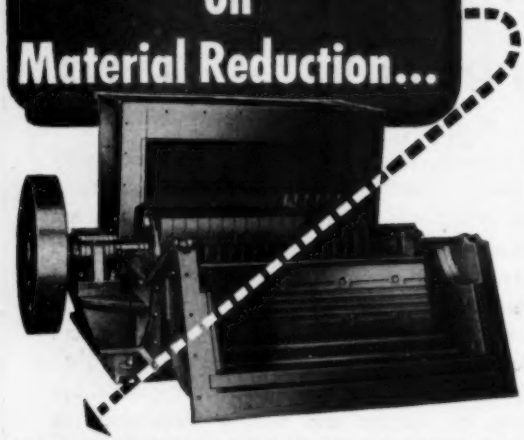
Twentieth Annual Convention
and Machinery Exposition
of the
National Ready Mixed Concrete Assn.
January 23-27, 1950
Stevens Hotel, Chicago, Ill.

Thirty-Third Annual Convention
and Machinery Exposition
of the
National Crushed Stone Assn.
January 30—February 1, 1950
Stevens Hotel, Chicago, Ill.

Fifth Annual Convention
and Machinery Exposition
of the
Agricultural Limestone Institute
February 1-3, 1950
Stevens Hotel, Chicago, Ill.

Thirtieth Annual Convention
of the
National Concrete Masonry Assn.
February 6-9, 1950
Hotel Sherman, Chicago, Ill.

For Cost Reduction on Material Reduction...

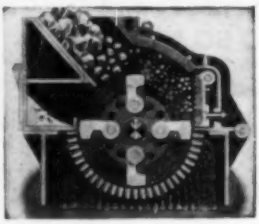


WILLIAMS' "HEAVY-DUTY"

HAMMERMILLS

Built to take 6" feed and reduce to agricultural limestone, ¾" stone and other small sizes in *one operation!* Crushing occurs on unusually heavy breaker and grinding plate before reaching grate. This permits grates to be used for sizing only, minimizing wear. The result; more output, more quickly reduced at less operating cost.

Sectional view of Williams "Heavy-Duty" hammermill, with heavy liners and grinding plate for limestone and other hard material. Particular attention is directed to the grinding plate adjustment which assures uniform close contact of hammers and grinding plate at all times. Also note the metal trap which provides an outlet for the escape of tramp iron.



WILLIAMS ALSO MAKES...

Heavy-duty hammermills in smaller sizes for all quarry operations; impact and roller mills for 200 to 325 mesh grinding; drier mills; air separators; vibrating screens; steel bins; complete "packaged" crushing and grinding plants.

WILLIAMS PATENT CRUSHER AND PULVERIZER CO.
802 ST. LOUIS AVE. ST. LOUIS 6, MO.

WC48-6

WILLIAMS
CRUSHERS GRINDERS SHREDDERS

EVERYTHING YOU'RE LOOKING FOR IN...

ELECTRICAL POWER EQUIPMENT

HERE'S A PARTIAL LISTING OF OUR LARGE STOCK OF

CHICAGO ELECTRIC

Carries a complete stock of rebuilt equipment in all types of power needs.

- AC MOTORS
- DC MOTORS
- GENERATORS
- M.G. SETS
- CONVERTERS
- COMPRESSORS
- SWITCHBOARDS
- TRANSFORMERS
- CONTROLS
- PUMPS

REBUILT SLIPRING MOTORS

HP	MAKE	TYPE	VOLTS	SPEED
1000	Westghse	CW-424	4000	500
800	Westghse	CW	6600/440	507
750	Gen. Elec.	MT-16	2200	450
700	Westghse	CW	2200	720
600	Gen. Elec.	ID	6600/2300	300
500	Ideal	AV-500	2200/4000	1800
500	Al. Chlrs.	ANY	440	600
400	Al. Chlrs.	ANY	4000	514
350	Westghse	CW	440	720
300	Gen. Elec.	IM	440	450
300	Al. Chlrs.	ANY	2300	720
250	Al. Chlrs.	ANY	2300	300
250	Cr. Whlr.	QSR	440	600
200	Westghse	CW	2200	600
200	Gen. Elec.	IM	2300	600
150	Gen. Elec.	IM	2300	720
100	Westghse	CW	440	575
100	Al. Chlrs.	ANY	440	720
75	Cr. Whlr.	25Q	440	600
75	Gen. Elec.	IM	440	514
60	Westghse	CW-752C	440	1750
50	L. Allis	GH-505	440	870
30	Lin. Cr.	FRLX1	220	900
25	Gen. Elec.	MT-6	440	1200
20	Al. Chlrs.	ARY	440	900
15	Al. Chlrs.	ARY-216D	440	900
15	Westghse	CW	440	900

PHONE: CANAL 6-2900

CHICAGO *Electric Co.*

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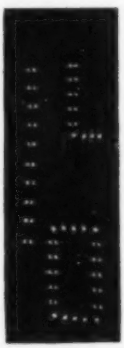
PLATEGRIP
REPAIR PLATE

for mending and patching heavy conveyor belts



Multiply the serviceable life of your heavy conveyor belts by patching worn spots and closing tears with PLATEGRIP Repair Plates. Easily applied, anywhere, they make strong, flush, dust-tight joints, that ride smoothly over all pulleys, outlast the belt.

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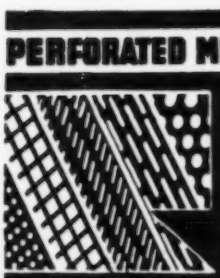
ARMSTRONG-BRAY & CO.
5394 Northwest Hwy. Chicago, Ill.

PERFORATED METAL SCREENS

FOR SAND, GRAVEL STONE, ETC.



Manufactured exactly to your specifications.

Any size or style screen in thickness of steel wanted with any size perforation desired.

We can promptly duplicate your present screens at lowest prices.

Prompt Shipment

CHICAGO PERFORATING CO.
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LANDIS COAL HAULER

MAKE HAULING EASY

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Proper Preparation and Planning
will
REDUCE YOUR
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WOLF G. BAUER
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CALCINATION & HYDRATION OF LIME, DOLOMITE, MINERALS
EXPANDED AGGREGATE, ROCK WOOL, HYDRAULIC CEMENTS
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BRICK MORTAR
STUCCO-PLASTER-CONCRETE
"Fine Because of Their Fineness"
Ask for samples and recommendations.
BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

WANTED
To buy sand and gravel business in desirable location. Material must meet state specifications. Give full details.
Box No. Q 4, c/o Pit & Quarry Publications
538 So. Clark St., Chicago 5, Illinois

WANTED
BATCH TYPE ASPHALT PLANT
1,000 pounds or 1,500 pounds. Complete for hot mix asphalt.
Box No. M 6, c/o Pit & Quarry Publications
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CORE DRILLING
ANYWHERE
We look into the earth
PENNSYLVANIA
DRILLING COMPANY
PITTSBURGH 20, PA.

WANTED
BACKHOE ATTACHMENT
for
BUCYRUS ERIE
15 B SHOVEL
STRASBURG LIME COMPANY, INC.
Strasburg, Virginia

HELP WANTED
INDUSTRIAL SAND PLANT SUPT.
Midwest District. Good advancement opportunities. Give birthplace and date, education, equipment knowledge, past experience, salary expected, together with other pertinent facts.
Box No. Q 10 c/o Pit and Quarry Publications
538 So. Clark St. Chicago 5, Ill.

WANTED

Aggregate Bin—500 tons capacity 4 compartment. 3 yd. Stationary Mixer—give complete specifications—location—price FOB cars.

●

Box No. Q 6
c/o Pit and Quarry Publications
538 So. Clark St. Chicago 5, Ill.

WANTED

New or used one or two compartment Dump Scow, also one new or used 1½ yd. Dipper Dredge (steam or diesel). Phone or write

THE OIL CITY SAND AND GRAVEL COMPANY
Oil City, Pennsylvania

WANTED

DIESEL INTERMITTENT
45 to 50 H.P. UNIT.

WALTER R. DORSEY
R. D. No. 1 West Liberty, Ohio

WANTED

50 ton Complete Used GYPSUM PLANT
NEED LOAN $300,000.00
To complete building
Foreign Cement Plant
Box No. Q 11
c/o Pit and Quarry Publications
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WANTED

10' Sturtevant, Raymond or Gayco AIR SEPARATOR. Must be in excellent condition. State age, lowest price, & where it can be inspected.

BOX NO. Q 7
c/o PIT AND QUARRY PUBLICATIONS
538 So. Clark Street Chicago 5, Illinois

WANTED

4 or 4½ ft. Symons Cone, standard. 24" x 36" RB Jaw Crusher, with or without Apron Feeder.

R. H. THOMASON
Hickman Mills, Mo.

WANTED

Used dryer including dust collecting system, 45 foot hot elevator and feed bins for 70-80 tons per hour capacity for asphalt hot mix plant. Will not consider anything but A-1 condition equipment, late model.

YORK STONE AND SUPPLY COMPANY
Post Office Box 1564
York, Pennsylvania

WANTED

1—Used heavy duty Swintek dredging ladder, 12 in. suction 35 to 45 ft. long.

BLACKHAWK AGGREGATES, INC.
P. O. Box 523
Rock Island, Illinois

CRUSHER WANTED

NEED SMALL TYPE ROLL CINDER CRUSHER. MINIMUM 12 TPH. MUST BE IN OPERATING CONDITION.

Box No. Q 12, c/o Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

FOR SALE

Quantity	Description	Condition
1	D-Sheave, 27" Pitch, 6" Bore, 14 Groove	Fair
1	Swintek, 30' Boom, complete with driving gears, chains, 12" suction, Friction Clutch	Fair
1	Caterpillar 60 Stationery Engine, Power take-off with 14" x 14" Flat Pulley	Good
1	Jaw Crusher, 300 RPM, 38" Throat	A-1
1	Pulley, Flat Cast Iron, 37½" Dia. x 25" 6⅛" Bore	Good
1	Pulley, Flat Cast Iron, 32" Dia. x 25", 5" Bore	Good
1	Pulley, Flat Cast Iron, 33½" x 25", 6⅛" Bore	Good
1	Pulley, Flat Cast Iron, 39¾" x 18", 5" Bore	Good
1	Pulley, Flat Cast Iron, 35¾" x 18", 5" Bore	Good
1	Pulley, Flat Cast Iron, 31¾" x 20", 5" Bore	Good
1	Pulley, American Split Steel, 32" x 15"	Good
1	Pulley, American Split Steel, 35½" x 9"	Good
1	Pulley, American Split Steel, 25½" x 11"	Fair
1	Pulley, American Split Steel, 23½" x 11"	Fair
1	Pulley, American Split Steel, 36" x 13"	Fair
1	Pulley, American Split Steel, 20" x 9"	Good
1	D-Sheave, 27" Pitch, 14 Groove, 3⅞" Bore	A-1
1	Amsco Centrifugal Pump Shell 10", #52425, 29" x 16" x 3⅝" Flat Pulley, without suction side plates	Fair
1	Chicago 2½" Double Suction Centrifugal Pump	Fair
1	Chicago 2" Double Suction Centrifugal Pump	Fair
1	Lot Used Shafting, 2" to 4"	Fair
1	Westinghouse Dash Pot Circuit Breaker, 440 V, 60 A	Poor
1	Dodge Timken Pillow Block Bearing, #CE 315 SS, 3-15/16" Bore with clamp sleeves	New
1	Dodge Timken Pillow Block Bearing, #CE 315 DD, 3-15/16" Bore with clamp sleeves	New
1	Rex CI Sprocket, Pattern 7865T, 54" Pitch, 6" Hub Dia. x 6" wide, 2-11/16" Bore, complete with 50' #A-588 Chain	New
2	Amsco Pump Shells #161790	Good
1	Head Pulley, 20" Dia. for 20" Conveyor Belt	Good
1	Tail Pulley for 20" Conveyor Belt	Poor
3	Sauerman Single Blocks 16", ⅝" Rope	Good
2	Sauerman Single Blocks 20", ⅝" Rope	Good
1	Rogers Roll Crusher, 32" Rolls, 54½" Flat Pulley Drive each side, Rolls Fair, Machine Excellent Condition	
1	Pulley, Cast Iron Solid, 10" x 24", 3" Bore	Good
1	Fairbanks Morse Direct Current Generator, Type DG, Frame 4025, 1500 W, 115 V, 3000 RPM	Fair
1	GE Dash Pot Circuit Breaker, Cat. 167369, 200 A, 3500 V	Fair
1	GE Dash Pot Circuit Breaker, 60 Amp, 2500 Volt	Fair
1	GE Dash Pot Circuit Breaker, 200 Amp, 2500 Volt	Fair
1	Cut-off Switch, 3 pole, 400 Amp, 250 Volt, Fusable	Fair

Quantity	Description	Condition
1	Pillow Block Bearing (Babbitt) 5" Bore for 10" Amsco Pump	Good
1	Type T, 60 A 230 V, 3 Pole Gen. Electric Generator	Fair
1	D-Sheave, 36" Pitch, 7 Groove, No Hub	Fair
1	D-Sheave, 44" Pitch, 8 Groove, 2-15/16" Bore	New
1	Rockwood Paper Pulley, 21" Dia. 25" Wide, 6⅛" Bore	Fair
1	Drum Switch, Cutler Hammer, #880490, 220 Volt, 100 Amp	Poor
1	Westinghouse Ctr. Breaker, 20-30 HP, 440 V, Style 192523	Fair
4	Sprockets, 8 tooth, 2-15/16" Bore, Chain drive for Rex 588 Spkt	New
1	Assorted Bushings for American Split Steel Pulleys	New
1	Boiler, 70 HP, 150# Pressure, Donovan Oil Field, Complete with smoke stacks, Burners, Header Valves, Mud Valves, Steam Gauges, Water Tri-Cocks, Feed Water Pump and Water Injector. Ark. Boiler Code #17547	A-1
1	Boiler, Donovan Oil Field, 94 HP, 75# Pressure, complete with Smoke Stacks, Burners, Header Valves, Steam Gauges, Water Gauges, Water Tri-Cocks, Feed Water Pump, Injector and Mud Valves. Ark. Boiler Code #17549	A-1
4	Tires & Tubes, Pennsylvania 7.50 x 16, 8 Ply	New
2	Tires & Tubes, Goodrich, 1200 x 20, 14 Ply	New
1	B-Pulley, 4 Groove, 1-11/16" Bore	New
1	Air Compressor 100 lb. with ¼ horse electric motor. Motor good, compressor needs repair	Fair
1	Fairbanks Morse Boiler Steam Pump, Ser. 7952, Size 3-2-4	Poor
1	Baldor Electric Motor, Frame 27 M-2, 220/440 Volt, 3 phase, 60 cycle, 1725 RPM, Wind B398, 5 HP, 13/6.5 Amp, 35 Degree, Ser. P-17712	Fair
1	General Electric, 25 HP Motor, #427059, Type 1-8-25A, 900 RPM, 60 Cyc., 68 Amp, 220 Volt, Full Load Speed 865, No load Speed 900, Induction, Sleeve Brng.	A-1
1	General Electric Ind. Motor, Model 5K 1364-A-1, 25 HP, 40 Degree, Type K, Code F, Frame 364U, 3 Phase, 60 Cyc, 220/440 Volt, Full Load 62-72, 1800 RPM, No. 5628218, Weather Proof	A-1
1	Eagle Swintek 40 ft. Ladder	Fair
1	Eagle Swintek 12" 40 ft. Ladder complete with digger 8" Pitch Chain, 2 sets new tracks, one new 12" Nozzle, 1 extra shaft and chain sprocket used, 1 set new rollers and pins for chain	A-1
1	Williams Reclaiming Bucket, ¾ yard	Poor
1	Diamond Centrifugal Pump, 8", Flat Pulley 18" x 24", 3" Bore	Poor
1	Steel Stiff Leg 60 ft.	Fair
1	Chicago Water Pump 6", #DS 517	Good
1	Upright Boiler	

If you are interested in any or all of this equipment, please contact us at either:

Arkhola Sand & Gravel Co.
501 Merchants Bank Building
Fort Smith, Arkansas
—Telephone 5000—

or

Yahola Sand & Gravel Co.
702 Manhattan Building
Muskogee, Oklahoma
—Telephone 1000—

SPECIAL OFFERING

1—new 18 x 32 solid steel frame style D crusher.

1—new 14 x 26 solid steel frame jaw crusher.

1—#6 McCully crusher in good running condition just taken from service.

2—6' dia. 12 x 16' long scalping screens 2¼" manganese perforations.

A number of new manganese steel screen sections for Allis Chalmers 6' revolving screens 2¼" perforations.

New and rebuilt jaw crushers in all sizes from 6 x 10 to 42 x 60.

ACME ROAD MACHINERY COMPANY — Frankfort, New York

DEPENDABLE USED MACHINES

Special.—Badger port. gravel plant with 9x36 jaw and 36x20 roll crusher.

Diamond port. gravel plant	Bay City ½ yd. dragline	RD-7 with bulldozer
Pioneer 42"x14' apron feeder	Browning 20 ton crane	Lippman 18x32 port. hammermill
Vibrating screens, all sizes	Int. UD-18 power unit	Bay No. 3 hammermill
B-G 24"x40' port. conveyor	Butler Carscoop	H-K Roustabout crane
Morris 10" gravel pump	Clarkto-Hough loader	36" ga. track switches

We move to our new plant Jan. 1st; meanwhile prices greatly reduced.

3506 W. 51st St. TRACTOR & EQUIPMENT CO. Chicago 32

WANTED

Used 4' rock feeder, suitable to feed a 48" jaw crusher. Also one 4' Short Head Symons Cone Crusher.

Please state price, location and condition.

V. DI FRANCESCO & SONS
17 Mifflin Avenue Llanerch, Penna.

WANTED

A 250 to 300 H.P. full diesel medium speed engine. Must be in first class operating condition. Give price and details.

Box No. Q 13, c/o Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

L.B.SMITH INC. OFFERS

AIR COMPRESSORS

Worthington two-stage, water cooled, vertical 250 ☆, 60 CFM, new condition.

Gardner-Denver, 105 foot, with air receiver, hose reel, driven by power take-off and mounted 1941 Ford.

Gardner-Denver air-cooled 105 foot with receiver, V-Belt driven from power take-off and mounted on 1942 Ford chassis with Wood two-yard dump body.

Gardner-Denver two-stage 160 ft., skid mounted.

Worthington 210 cubic foot, two-stage air-cooled, on skid base with Hercules diesel.

Chicago Pneumatic 210 cubic foot, two-stage, air-cooled, Caterpillar diesel on four rubber tired wheels.

Gardner-Denver 315 cu. ft. two-stage, skid mounted, Murphy four-cylinder diesel.

Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven, 50 HP slip ring motor.

BELT CONVEYORS

New 18" — 24" — 30" — 36"

SHOVELS & CRANES

Lorain 75-B, 1½-yd. shovel, crane, hoe, Caterpillar D11000.

Lorain 75A, 1¼-yd. shovel or crane, gas or GM diesel.

P&H Model 255A crawler shovel.

Lorain L-41, ¾-yd. crawler shovel & crane.

Lorain 40 truck crane, Waukesha engine, mounted on Mack chassis.

Lorain TL-20 self-propelled, 45' crane boom.

QUARRY EQUIPMENT & BINS

3018 Cedarapids roller bearing roll crusher, new condition, new warranty, used as demonstrator only.

18 x 36 Farrell deep jaw crusher, with McLanahan 3' x 7' roll type feeder.

10 x 36 Cedarapids, practically new.

10 x 20 Champion No. 41½ primary jaw crusher.

10 x 7 Allis Chalmers Blake type jaw crusher.

Williams 20-S pulverizer.

60 ton 2 compartment storage bin with clam shell gates.

Allis-Chalmers 5x14 double-deck screen

Cedarapids No. 1 Kubit

Cedarapids 1036 jaw crusher

GRADERS

Warco Model D-76 tandem driven diesel grader, 12' blade, V-type scarifier, deluxe cab, 13.00 x 24 8-ply lug tires, hydraulic power control steering, International UD-14A diesel.

Caterpillar 44 hydraulically operated drawn grader, 12' blade, wt. 8,500 lbs.

ELECTRIC MOTORS

New & Rebuilt — All sizes
3 to 125 HP in stock
Open & totally enclosed

TRUCKS — TRAILERS

1½-ton Ford & Chevrolet.

2½-ton GMC, New and rebuilt.

Sterling COE Model 255GCS tandem drive tractor, 200 HP Cummins supercharged diesel, excel. cond.

40-ton Rogers low bed equipment trailer, air-brakes, outriggers, excel. cond.

Van Trailers with 17'x7'6"x8' bodies. Five ton capacity.

2,000 gallon tanks on semi-trailer mounting.

New and rebuilt dump bodies.

CLAMSHELL BUCKETS
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SCRAPER BUCKETS

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New JXD Hercules gasoline.

New Murphy 4 and 6 cylinder diesel.

GMC 6 and 12 cylinder. Practically new.

Buda, Hercules, Hill, rebuilt.

DIESEL GENERATORS

7½ KW to 125 KW. Alternating and direct current.

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LASTING • BONAFIDE • SERVICE — L.B. SMITH, INC.

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WE OWN THE EQUIPMENT WE ADVERTISE

READY MIXED CONCRETE PLANT

1—Complete READY MIXED CONCRETE PLANT—Blaw-Knox including the following: 800 barrel bulk cement bin, 100 ton per hour bucket elevator with unloading screw for handling bulk cement; Model 84-S Ransome Mixer (less than 2 years old); 100 ton three compartment aggregate bin complete with cement and aggregate weighing batchers; electric powered gantry and whirley for charging bins, with 2 cu. yd. Clamshell Bucket. Plant in daily operation and can be inspected in the Philadelphia district. Available on or before September 1, 1949. Offered subject to prior sale or commitment.

FURNIVAL MACHINERY CO.
54th & Lancaster Ave., Phila. 31, Pa.

FOR SALE

LOCOMOTIVES

2—Whitcomb gas, 6 ton, 25" ga.
Davenport—35 ton—0-4-0—#2461—Le Roi 250 H.P. Gas Eng.—Std. Ga.—Like new. Very cheap.
1—Plymouth 25 ton Diesel, Std. ga.
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1—Whitcomb 50 ton Diesel Elec., Std. ga.
1—Baldwin 100 ton Diesel Elec., Std. ga.
1—American 100 ton Diesel Elec., Std. ga.
Plymouth—44 ton Diesel Electric—#4317—Cummins Engines—West. Elec. Equip. & Brakes.

COMPRESSORS

2—I.R. 2000', 3/60/2200.
2—Chi. Pneumatic, 1300', 3/60/220.
1—I.R. 6000', 3/60/2200—Low Pressure.

DERRICKS

1—American S.L., 100 ton, 90 120'—100' boom.
1—American S.L., 100 ton, 110' boom.
2—American S.L., 10 ton, 75' boom.
1—American 70 ton @ 120'—135' boom—complete with American 3 Drum—250 H.P. Gas Hoist.

CARS

28—Western 20 yd. Air Dump.
10—Magor 30 yd. Air Dump.

CRANES

Northwest—60-D—2½ yd. Diesel Shovel—#5878—New 1946—$22,000 f.o.b. N. Y. State.
1—Industrial Type L, 50 ton, new 1948.
1—Browning #8, 20 ton, Oil Fired.
N. W. No. 6—1½ yd. Shovel—Drag—Diesel. #4141.

MISCELLANEOUS

2—A.C. Mod. 42—Dual Drive Gas Graders—Good condition—Cheap.

R. H. BOYER
2005-13 W. Bellevue Street
Philadelphia 40, Pennsylvania
Phone—SA-2-7132

DIESEL SHOVELS and DRAGLINES

85B Electric Shovel, 30' boom, 19' handle, 2½ yd., 2300 volts.
1—Lorain 82 Std. shovel.
1—54 B.B.E. Strip, 45' boom, 32' stick, 2 yd.
1—1000 Osgood strip, 45' boom, 35' stick, 2 yd.
1—3000A Manitowoc, 24' boom, 18' stick, 1¾ yd.
80' D.L. boom, fairleads.
2—80 D.N.W. 30' boom, 22 stick, 2½ yd.
1—93 M. Marion shovel and dragline.
1—P&H 1055 L. C. 2½ yd. 1948, shovel.
1—P&H 1055, 3 yd. 1948, shovel.
1—820 Lorain 24' boom, 18' stick, 2 yd.
1—87 Lorain 1¾ yd. 1942, new engine.
1—80 ft. Manitowoc Boom, fairleads, drum lagging sheaves, 95% new.
4—8D Caterpillar bulldozers, hyd.
2—2½, 3 and 5 yd. shovel dippers.
4—Mack side dumps, HB9 Cummins, 25 yd.
1—LeTourneau, 4-wheel Model G, 9 yd.
15 yd. Garwood Carryall Pan and 8D Bulldozer.
4D Cletrac and angledozer, diesel, rebuilt.
2—30 H.P. G.E. Motors, 1200 R.P.M. 3/60/220.
30 x 18 Allis-Chalmers Jaw Crusher.
6D Caterpillar diesel Angledozer. Good.
20 & 25-ton Gas and Diesel Locomotive Std. Ga.
2—30 ton Brownhoist Diesel Cranes, & Wheel.

McCARTNEY MACHINERY COMPANY
CHURCH STREET
YOUNGSTOWN 10, OHIO

COMPLETE BELT CONVEYORS AND CONVEYOR BELTING

COMPLETE ELEVATORS • DRAG CONVEYORS • PAN & RECIPROCATING FEEDERS
ELEVATOR BUCKETS • CONVEYOR PULLEYS

IMMEDIATE DELIVERY — Write for Literature — REDUCED PRICES

FRANK A. KREMSER & SONS, INC.

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PHILADELPHIA 40, PENNA. REgent 9-7524

LOCOMOTIVE—Sale or Rent: 80 ton, 6 wheel, saddle tank.

CLASSIFIERS: 1—New 78" x 35 ft. Classifier, manganese fitted, with tank and 10 H.P. Motor, etc. All complete, NEW condition. Also, one 24" x 16'9" with 2 H.P. Motor.

COMPRESSORS: Ingersoll Rand 315 cu. ft., portable, diesel. 2—Steam, 18 x 29 x 16 & 26 x 20, 110 lbs. steam pressure.

SHOVELS & DRAGLINES: 1—P & H model 855 combination Shovel & Dragline.
1—Lima 802, 2½ yd., diesel, combination Shovel & Dragline.
1—Lima 1201, 3 yd. diesel Shovel. Also, 802, 2 yd.
1—Northwest 80-D, 2½ yd. diesel Shovel.
1—Bucyrus Erie 54-B, diesel.
1—Bucyrus Erie 85-B, electric, 3½ yd.

BLAST HOLE DRILLS: Bucyrus Erie 29-T Electric, 440 volt, and one NEW gasoline driven; both with 9" bits and tools.
Bucyrus Erie 42-T, electric, 9" bits and tools, built in wrenches, 220/440 volt.

TUGGER HOIST: Ingersoll Rand 35 H.P., 220/440 volt.

KILNS, COOLERS, DRYERS: 1—Single Shell 34" x 20 ft., complete with drive, burner, no motor.
1—Christie BV, 80" x 50'. 1—10' x 90' heavy duty type Dryer, complete with dust collector and all auxiliary equipment. 1—Traylor 54" x 40', single shell, Dryer. 1—Ruggles Coles class XF-12, 80" x 60' long, double shell, Dryer.
1—Traylor single shell 60" x 40'. With or without motors.

HARDINGE MILLS: Conical Ball Mills, 8' x 20" and 8' x 36", manganese steel lined, Herringbone gears with motors and V belt drive. 1—6' x 36" silex lined. 1—7' x 9" manganese lined, with or without 250 H.P. synchronous motor. 1—8' x 20" and 10' x 72" steel lined, with or without motors. 1—3' x 8' steel lined Rod Mill.

GYRATORY CRUSHERS: All sizes 8" x 30" to 42" x 134".

JAW CRUSHERS: All sizes 4 x 6 to 48 x 60".

REDUCTION CRUSHERS: Telsmith 3' and 4' Cone; Telsmith 32B complete with V-belt pulley; Symons 5½ ft. short head, one coarse bowl, one fine bowl; Symons 2 ft. Cone.

SCREENS: Pioneer 5 x 8' Scalper; Robins Gyrex 4 x 7', double deck with motor and drive; Nordberg 5 x 16' Scrubber, and one 4 x 12', 4 deck, flat Screen.

GOODRICH SUPER LONG LIFE CORD CONVEYOR BELT (NEW): Large quantity of Goodrich Belt 42" wide, 6 ply, 42 oz. duck, ⅛" top cover, ⅛" bottom cover, on original reels, all NEW. NATURAL RUBBER, with or without mechanical parts.

A. J. O'NEILL

Lansdowne Theatre Building

LANSDOWNE, PA.

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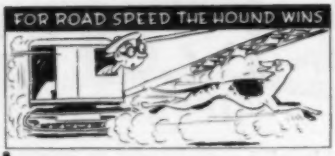

Want a racy looking "sport model" CRANE? We have them — also those with plain cabs. DEPENDABILITY is the *main* feature that sells E.C.A. CRANES.

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1—2¼ yd. Link Belt Model K570 Diesel Crane, Ser. No. 2215, with high gantry, hydraulic controlled. Powered by Caterpillar D17000 Diesel engine. Equipped with 80' boom.

1—¾ yd. Link Belt Model K370, Ser. No. 2247, equipped with 70' boom, powered by Cat. D13000 Diesel engine.

1—1½ yd. Lorain Model 80, Ser. No. 10750, with 65' boom, powered with Waukesha-Hesselman diesel engine.

1—1½ yd. P&H Model 655-A, combination shovel, dragline and crane, Ser. No. 6426, powered by Caterpillar Model D13000 Diesel engine. Crane boom 75', shovel front 24' boom, 18' sticks. 1½ yd. manganese dipper.

1—1½ yd. Link Belt Model K360, Ser. No. 1950, powered by Caterpillar D13000 Diesel engine with 65' boom. Also have back hoe attachment, boom 25' scoop area 8/9", pull shovel mast 11'9", with 1¼ yd. dipper.

1—1¼ yd. #5 Northwest, Ser. No. 4564. Powered with 6 cyl. Wisc. Model D84 and Twin City Model TA gasoline engine. With 50' boom.

1—1¼ yd. Link Belt Model K38 crawler crane, Ser. No. 1320. Powered with 4 cyl. Model WLS1-B Waukesha gasoline engine with 50' boom.

1—yd. Erie Gas-Air Model GA-2 combination shovel and crane, Ser. No. 10679, powered with 4 cyl. Waukesha Model WL35 gasoline engine, with 47' crane boom. Shovel boom 23', sticks 17' with 1 yd. dipper.

2—¾ yd. Koehring Model 301, Ser. Nos. 544, 772 and 840. Powered by 4 cyl. Wisconsin Model M gasoline engines. With 40' boom.

1—⅝ General Model 307, Ser. No. 2575, powered by 71 HP 8 cyl. Chrysler Industrial engine, with 40' boom.

2—⅝ yd. Buckeyes, Model 70, Ser. Nos. 5409 and 5411, with 40' boom, powered by 71 HP Chrysler Industrial gasoline engines.

We OWN 15 CRANES NOT SHOWN ON THIS LIST. SEVERAL CRANES LISTED ARE IN OUR RENTAL DEPT. ONLY.

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1—50 ton American Model 20-100 all steel guy derrick, Ser. No. 1184, with 115' mast, 100' boom, 16' bullwheel. Capacity 50 tons at 28' and 20 tons at 93' radius.

1—100 H.P. American dbl. drum Ser. No. 2019, heavy duty with 9x10 frame, dbl. ventilated brakes and attach. swinger, power 100 H.P. A.C. motor. Cap. 12,000 # L.P. @ 250 FPM.

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Portable and stationary, electric, diesel & gasoline power, sizes from 20 cu. ft., 1,000 cu. ft.

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1—35 ton Ohio, Mdl. G, ser. No. 3950, boom 50', ASME boiler, cast steel trucks, outriggers.

1—15 ton Link Belt Ser. 2 679, ASME boiler, cast steel trucks. Bargain.

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½ yd. Universal Crane #873, with 25' boom, mtd. on 10 wheel Hendrickson pneu. tired truck.

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1—15 ton Vulcan std. ga. locomotive, Ser. No. 3993. With special MCB couplings. Powered by 6 cyl. LeRoi Mdl. JMS gasoline engine. Equipped with 4-wheel air operated brakes with 2 cyl. Westinghouse air compressor. Complete with starter and generator.

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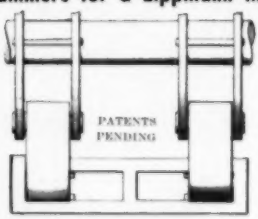
Hammers for a Lippmann Mill



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1—Barge (steel) 28 x 95
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1—Diesel Engine Sea Mule Tug Boat
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We Rent Construction Equipment of All Kinds

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#6K Allis-Chalmers.
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Jeffrey Swing Hammer, 36" x 24", A2.
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DIESEL GENERATORS
60 KW G.M. 6-71RC, 3/60/127-220, complete. Used only 100 hrs.
100 KW Hercules DNX-6, 3/60/127-220. Unit completely enclosed.
100 KW Superior GDB-8, 120/240 DC, comp.
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4'x30'x3/8", Traylor.
7'x45'x1/2", Link Belt.
3'10"x16' Link Belt, Roto Louvre.
7'6"x125', Allis-Chalmers.
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FANS & BLOWERS—From 1000-53000 CFM. Axial Fans—3000-10000 CFM (Unused).
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REDUCERS—Ratio 4-1 to 263-1, 3 to 10 HP. Vari-Speed, ratio 2-1 to 6-1, 3 to 7½ HP.
STACKS—5'3"x110', welded, ¼" & 3/8". 42"x37' high, 1/2" & 3/8".

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Both only run two seasons. Plant change.
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1—45 ton G.E. Diesel Electric standard gauge locomotive, excellent condition.

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BIRMINGHAM 1, ALABAMA

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Gas, Diesel Steam Loco. Dump Cars, Loco. Cranes.
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All steel dredge boats and tug boats
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MOUNTED ON 4 PNEUMATIC TIRES

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(10) 1946 Federal Trucks 45M with 5th wheel
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ALSO
24" and 30" Conveyors
2½ yard dbl. Drum Slack Line Hoist
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Stocks at Various Points

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Guaranteed Equipment
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15 Ton Truck Scales..... $450.00
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Other scales to 50 ton capacity. All truck scales complete with structural steel weighbridge. Replacement parts for most all makes of scales.

STONE, COAL, CINDER CRUSHERS

10 to 20 tons per hour capacity.....$395.00
25 to 50 tons per hour capacity..... 945.00

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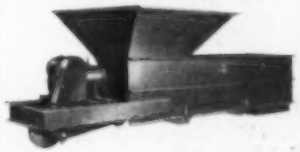

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VIBRATING SCREENS

Approximately 100 machines in stock, ranging in screen sizes from 2'x5' to 5'x14' and with 1 to 5 decks. Eccentric weight or positive throw eccentric shaft types.
Prices from $395.00

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Troughing idler conveyors — picking tables. Lengths from 10' to 500', widths to 60".
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All steel. Interchangeable with other well known makes of idlers. Precision ball bearings with alemite fittings. Replaceable bearings. Shafts run clear through, and no bearing adjustments are required. Easy to start and will run in cold weather. Rust-proof ball races; maintenance is negligible. Build your own conveyors; we have all parts, including standard sections, head and tail pulleys, take-ups, drives, idlers, speed reducers, sheaves, belting etc.

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Width			
14" belt	$18.50	24" belt	$21.00
16" belt	19.00	30" belt	22.00
18" belt	20.00	36" belt	22.00
42" belt	$24.00		

1-roll Return Idlers:

Width			
24" belt	$8.25	36" belt	$ 9.75
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48" belt	$11.25		

More than 2,000 mines and quarries have Bonded equipment.

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Jeffrey 30" x 24" rigid hammer pulverizer
American Pulverizer, type 8T-T
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Jeffrey single roll 18" x 18" coal crusher
Universal 3M 9" x 16" jaw crusher
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10 complete open and closed elevators
Inclined and vertical 14" bucket elevators
Inclined and vertical 12" bucket elevators
Enclosed elevators, 16" buckets, continuous
Enclosed spaced bucket elevators 10"
Elevator belt, chains, buckets, sprockets, etc.
400' new #933 thimble chain with K-2½ links
CHAINS: H78, 83-F2, 114, 522, 730, Standard roller chain

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Seco vibrating screen, 3' x 8', two deck
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300'—30" belt conveyors, Timken bearings
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90 gear reducers, ½ to 90 HP
Gearmotors and Vari drives
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Silent Hoist horizontal car pullers, 5 & 10 HP
Electric and air hoists

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Locomotive Crane, 20 Ton Brownhoist, 8 wheel, 50 ft. boom.
Double drum hoist, belt driven, "American".
Shovel attachment complete for Koehring Crane 301
Blade grader, "Russell" 12 ft. blade, pull type.
Barco Gas Hammer, Model H-6
Stationary Concrete mixer, Koehring 14 S gas driven.
Platform scale, wheelbarrow size.
2 Ready Mix Concrete mixers, Jaeger 2 yd. mounted on truck.
Complete ice loading equipment for natural ice for car or ice house storage. Conveyor chain, gears, small tools, power ice saws, Gifford-Wood equipment. Cap. 5,000 tons per day.
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Northwest Crawler Gas Crane, late type Crawler, feather touch control, Cap. ¾ to 1-yard.
Barber-Greene "62-A" crawler Spiral Feed Gas Bucket Loader.
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The above ready for work, priced to sell.

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30 ton American steel stiffleg derrick, 100 foot boom.

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150 HP portable firebox boiler. ASME Code. 250# steam pressure.

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Pioneer Hopper plate feeder for above conveyor. Used one month. $250.00. Write or call

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Motors and Generators, A.C. and D.C. for sale at attractive prices. New and Rebuilt. All fully Guaranteed. Send us your inquiries.

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25x40 Jaw Crusher, Conveyors, Etc.
36x24, 20x20, 16x22 Hammermills
12x24 Universal Jaw Crusher $800
6'x35' Oil Fired Rotary Dryer
5½' Symons Cone Crusher—Fine
¾ Yd. Byers Gasoline Shovel
100, 125, 150 HP Syn. Motors

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MACHINERY IMMEDIATELY AVAILABLE

2—5'x12" Two Surface Tyrock F-600 Screens Complete with Motors
This Equipment New
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1—2 unit George Super "V" Vibrator Block Machine With Press Pac
1—1 Bag Mixer With 7½ H.P. Motor
1—Self Feed Hopper
2000—8x16 Steel Pallets
40—Steel Drying Racks
1—3500 Lb. Lift Truck
All Machinery Slightly Used
Will Also Trade On D-6 or D-7 Caterpillar Dozer
Machinery Can Be Seen At Any Time

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Lime plant equipment including blowers, motors, conveyor belt and Kuntz hydrator.

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Two 6 ft. 6 inch by 80 ft. autoclaves, 140 lbs. pressure. One 210 H. P. Ace oil burner, complete with all electric controls. One 10,000 gallon oil tank. One 55 KVA capacitor with switch.

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Super C Tournadozer, C-11's, D Roadsters, Super C Tournapulls, Various 12 to 23 yard Scrapers, Rooters, Sheepsfoot, Bucyrus-Erie E-2 Crane, Hydrocranes.

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New and Rebuilt
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CARLYLE RUBBER PRODUCTS ARE NEW, GUARANTEED & LOW PRICED

NEW GUARANTEED

CONVEYOR BELTING

ABRASIVE RESISTANT COVERS

Width	Ply	Top-Bottom Covers
48"	8	1/8" – 1/16"
42"	5	1/8" – 1/16"
36"	6	1/8" – 1/16"
30"	6	1/8" – 1/16"
30"	5	1/8" – 1/16"
26"	5	1/8" – 1/32"
24"	5	1/8" – 1/32"
24"	4	1/8" – 1/32"
20"	5	1/8" – 1/32"
20"	4	1/8" – 1/32"
18"	4	1/8" – 1/32"
16"	4	1/8" – 1/32"
14"	4	1/16" – 1/32"
12"	4	1/16" – 1/32"

Inquire For Prices — Mention Size and Lengths

TRANSMISSION BELTING

HEAVY-DUTY FRICTION SURFACE

Width	Ply	Width	Ply	Width	Ply
18"	6	10"	6	6"	5
16"	6	10"	5	5"	5
14"	6	8"	6	4"	5
12"	6	8"	5	4"	4
12"	5	6"	6	3"	4

Inquire For Prices — Mention Size and Lengths.

ENDLESS "V" BELTS

"A" Width All Sizes —
"B" Width All Sizes —
"C" Width All Sizes —
"D" Width All Sizes —
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Sold in Matched Sets.
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SPECIAL OFFER . . . HEAVY DUTY RUBBER HOSE

FIRE HOSE

APPROVED SPECIFICATION HOSE EACH LENGTH WITH COUPLINGS ATTACHED

I.D. Size	Length	Per Length
2½"	50 feet	$28.00
	25 "	16.00
2"	50 "	23.00
	25 "	13.00
1½"	50 "	20.00
	25 "	11.00

Specify Thread On Couplings

AIR HOSE

I.D. Size	Length	per Length	Universal Couplings
½"	25 feet	$5.00	$1.50 Pair
	50 "	10.00	1.50 Pair
¾"	25 "	7.50	1.50 Pair
	50 "	15.00	1.50 Pair
1"	25 "	10.00	1.50 Pair
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20x36,	24x36,	10x40,	30x42	
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11x24,	11x26,	13x24,	14x26,	14x28, 15x36,
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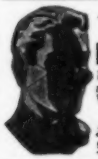

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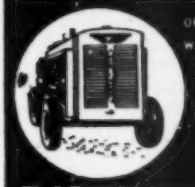

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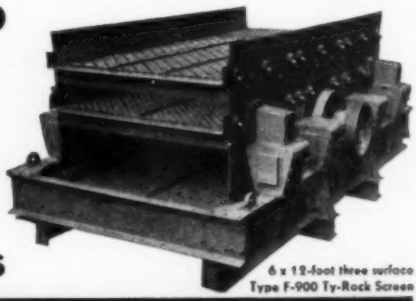

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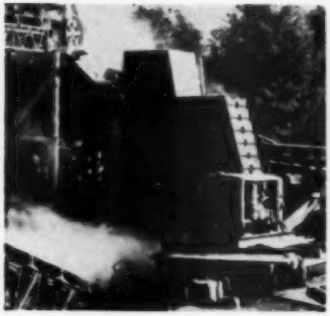

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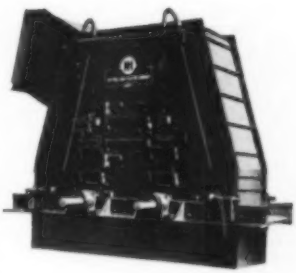

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